CHUCK E. CHEESE'S®

Studio C Technical Manual

1-7-00

CEC

entertainment, inc.

Studio C
Start Up/Shut Down Procedures

Start Up:

1. **Turn on air compressor.**
2. **After compressor stops, drain water from tanks.**
3. **Verify all circuit breakers are turned on for the showroom.**
4. **Turn on the master power switch at the bottom of the rack.**
5. **Turn on both D.T.U.'s (Gray boxes on the computer room wall.**
6. **Turn on each DVD player…The green light will be lit when they are on.**
7. **Touch manager panel.**
8. **Enter the manager password and press "Enter".**
9. **Select "Start-up" from the menu.**
10. **When prompted enter the birthday names if desired.**
11. **When prompted, run diagnostics if desired.**
12. **The show will begin shortly.**

Shut Down:

1. **Touch manager panel.**
2. **Enter manager password and press "Enter".**
3. **Press shut down from the menu.**
4. **The show will stop after the skit in progress ends.**
5. **Verify the park light is lit on all laser disc players.**
6. **Turn off both D.T.U.'s (Grey boxes on computer room wall).**
7. **Turn off master power switch at the bottom of the rack.**
8. **Turn off the air compressor.**
9. **Turn off the circuit breakers for the Roboscans/Robocolors.**

Installing the DVD players

Step 1

1. Make sure there are no discs in the players.
2. Press and hold the MENU button on the remote for 5 seconds.
3. Use the down arrow to cycle through the settings (Fig 2 / Fig 3).
4. Use the right arrow to change the value.
5. Use the up and down to select the item to change.

Remote



Correct Settings

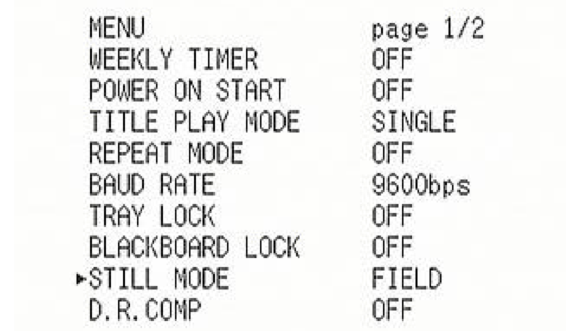


Fig 2

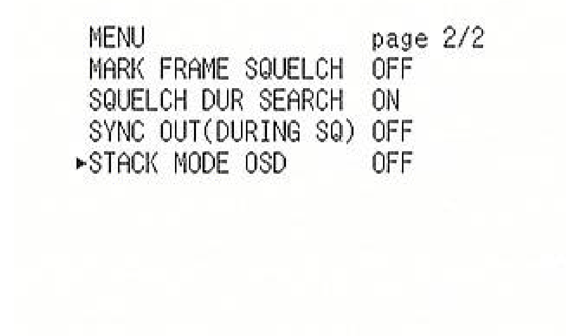


Fig 3

Step 2

1. Press MENU 1 time (Exits the screen menu).
2. Press MENU 1 time (Enters the menu selection).
3. Press enter to select INITIAL (Fig 4) (This screen will display if no discs are in the player).
4. Use the down arrow to select B.G. COLOR, press enter (Fig 5).
5. Use the down arrow to select the green square and use the left arrow to turn it all the way down (Fig 6).
6. Use the down arrow to select the blue square and use the left arrow to turn it all the way down (Fig 6).
7. Press Enter. You are now ready to insert the dis cs.



Fig 4



Fig 5



Fig 6

Studio C Tech Terminal



Figure 1

DTU Configuration
Bank #01 <1-64>

Figure 2

DTU Configuration
Bank #02 <65-128>

Figure 3

Understanding the Tech Terminal is an important part of troubleshooting your show. We will attempt to cover all the basic operations of the Tech Term in this article. We have also listed all the movements (Bits) in both the #1 and #2 DTUs (Digital Terminal Units).

Important Note:
It is important to understand that when you first plug in the Tech Term you will only see a flashing cursor on the on the LCD display. This is normal, press the menu button to show the display in figure 1.

Let's start by selecting DTU #1, the top DTU. You can do this 2 different ways. The first way is by plugging the Tech Term into one of the two "phone type" jacks at the front of your stage. The other way is to plug the Tech Term directly into the gray DTU box located behind the stage. This can be done by, unplugging the "phone type" cable that is plugged into the right side of the gray box. You can then plug the Tech Term directly into that "phone type" plug.

In figure 1, the Tech Term is displaying the two options it is capable of performing. The first option is "Configuration". Every show has two DTUs, one for the character movements and one for the lights. Both DTUs are identical, in order for the computer to send the right information to the right DTU we must first tell the DTUs which one is #1 and which one is #2. To perform this option, press the #1 on the keypad to enter into the configuration mode.

At this point your display should like figure 2. This tells you that the DTU you are plugged into is configured as #1 <1-64>, which is correct for the top DTU.

Repeat the same procedures to set the bottom DTU #2. It should be set to Bank #02 <65-128> as shown in figure 3.

If you should have to change from Bank #01 (Character Movements) to Bank #02 (Lighting) press the arrow up or down button to toggle between the two. You should only have to do this if you have just received a new DTU.

Important Note:
When done, always exit by pressing the Menu button until you see a blank screen. This will save your current settings.

Studio C Tech Terminal

Arm out (R)
Channel : 01 Off
Status : Clear
F1 = BL/CL F2 = On/Off

Figure 4

Important Note:
If you turn on a movement (Bit) in "Diagnostics" and leave it on, it will stay on until you power down the DTU. Always remember to turn the movement (Bit) off before disconnecting the Tech Terminal from the DTU.

The next option in figure 1 is "Diagnostics". This function will allow you to do 2 things, turn on a movement (Bit) or Blind a movement.

Press the #2 "Diagnostics" on the tech terminal to enter into the screen shown in figure 4. Let's start by turning on the "Arm out (R)" movement on Chuck E Cheese, this is done by pressing F2 on the Tech Term. Chuck E's arm should move and the corresponding led should light. Press F2 again and the bit (LED) will go off. You select other movements (Bits) by using the arrow keys.

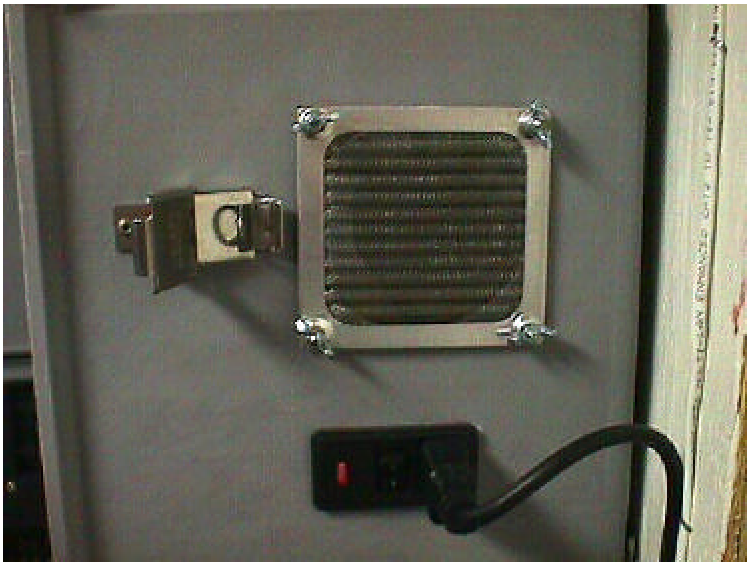
Now let's look at the BL/CL (Blind/Clear) command. This command is used to stop a movement (Bit) from functioning. If for example, Chuck E's arm breaks in the middle of a party, you would want to blind that movement until you could repair it when the party was over. If you leave it blinded and exit using the menu button until you see the blank screen, it will stay that way until you go back in and unblind it by pressing F1 again.

The "Blind" feature should only be used in case of an emergency as in the example above.

Studio C Main Computer Filter



Studio C DTU Fan Filter



You should clean your Computer and DTU fan filters once every two weeks. This will keep your system cool and dust free. In the future this will be included on your PM calendar.

Studio C Bit Chart

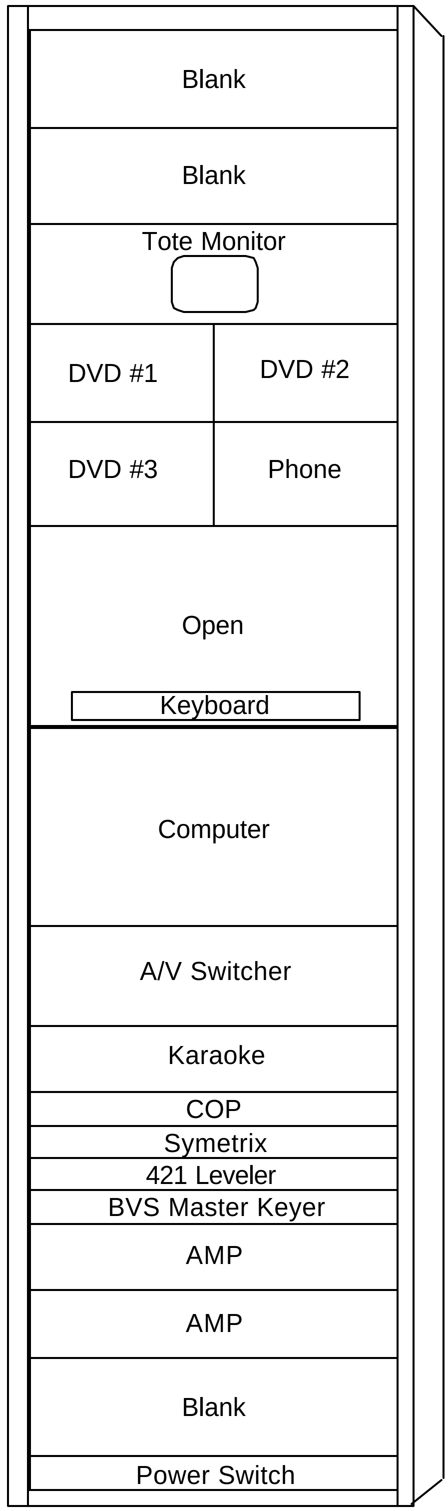
DTU #1

1	ARM OUT	33	BIRD MOUTH
2	ARM SWING	34	BIRD BOW
3	ELBOW UP	35	BIRD TURN
4	WRIST TURN	36	BIRD WINGS
5	WAVE	37	BIRD SPARE
6	ARM OUT	38	BIRD SPARE
7	ARM SWING	39	BIRD SPARE
8	ELBOW UP	40	PHONE SWING
9	WRIST TURN	41	PHONE SPARE
10	WAVE	42	PHONE SPARE
11	LEFT ARM FORWARD	43	
12	BODY FORWARD	44	CURTAIN OPEN
13	BODY LEFT SIDE BEND	45	CURTAIN CLOSE
14	BODY RIGHT	46	
15	TORSO TWIST RIGHT	47	
16	TORSO TWIST LEFT	48	
17	RIGHT ARM FORWARD	49	PHONE SPARE
18	HEAD TURN LEFT	50	
19	HEAD TURN RIGHT	51	
20	HEAD UP	52	
21	MOUTH	53	
22	HEAD TILT RIGHT	54	
23	HEAD TILT LEFT	55	
24	EYE BLINK DOWN	56	
25	EYE BLINK UP	57	
26	NOSE	58	
27	EYE TURN LEFT	59	
28	EYE TURN RIGHT	60	
29	EYEBOWS UP	61	
30	EYEBROWS DOWN	62	
31	EARS	63	
32	FOOT TAP	64	

DTU #2

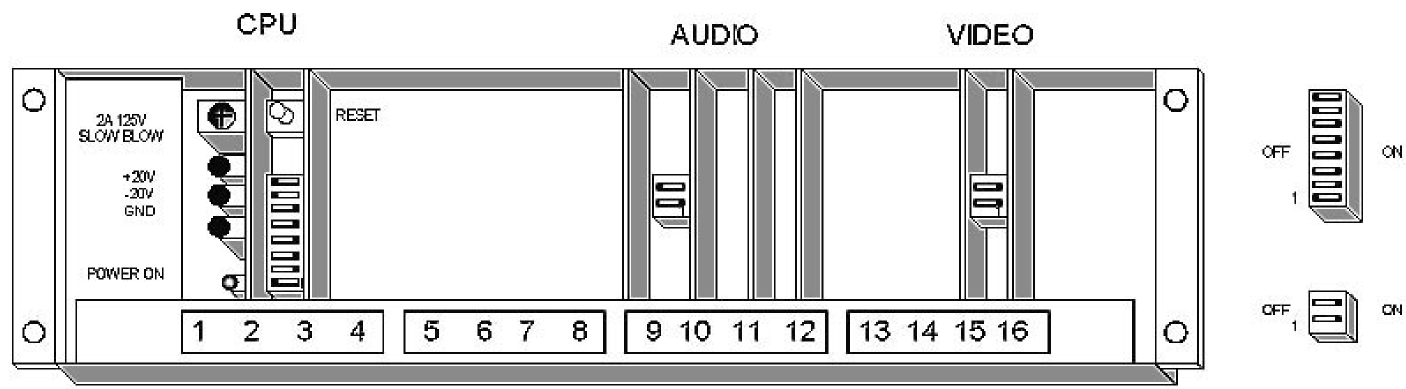
1	CEC RED FLOODS	33	HOUSE LT DIM
2	CEC GREEN FLOODS	34	
3	CEC BLUE FLOODS	35	
4	CEC AMBER FLOODS	36	
5	BS RED FLOODS (NOT USED)	37	
6	BS GREEN FLOODS (NOT USED)	38	
7	BS AMBER FLOODS (NOT USED)	39	
8	SPARE 1-8	40	
9	CLOCK NEON	41	
10	CLOCK FORWARD	42	
11	CLOCK REVERSE	43	
12	STROBE	44	
13	CITY LIGHTS	45	
14	DESK PANEL BLUE (INNER)	46	
15	DESK PANEL GREEN (MIDDLE)	47	
16	DESK PANEL RED (OUTER)	48	
17	PHONE HANDSET LTS	49	
18	PHONE DIAL LTS	50	
19	ON AIR SHOW	51	
20	APPLAUSE SIGN	52	
21	MONITOR CHASE LIGHTS	53	
22	MONITOR PINK NEON (INNER)	54	
23	MONITOR BLUE NEON (MIDDLE)	55	
24	MONITOR GREEN NEON (OUTER)	56	
25		57	
26	GEMINI-WARP	58	
27	CEC SPOT	59	
28	BIRD SPOT	60	
29	LIVE FLOODS	61	
30	AMBER ROOM FLOODS	62	
31	PINK ROOM FLOODS	63	
32	BLUE ROOM FLOODS	64	

Studio C Show Rack



1 Rack Space = 1-3/4 "

SIGMA SERIES 2100
A/V SWITCHER



CPU SWITCH SETTINGS

6 - 7 - 8 ON, OFF, OFF 16 INPUTS x 16 OUTPUT
3 - 4 - 5 ON, ON, ON RS232
1 - 2 OFF, ON 9600 BAUD

AUDIO SETTINGS

2 OFF
1 ON

LEVEL 2

VIDEO SETTINGS

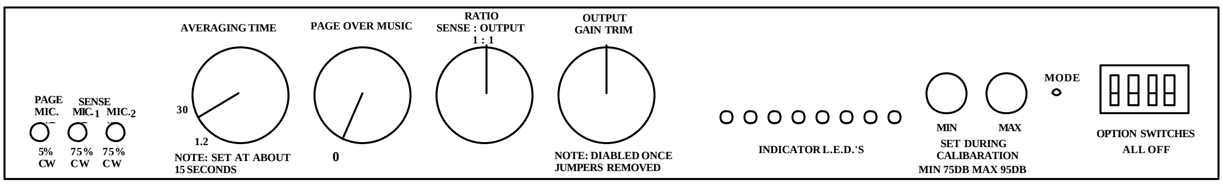
2 ON
1 ON

LEVEL 1

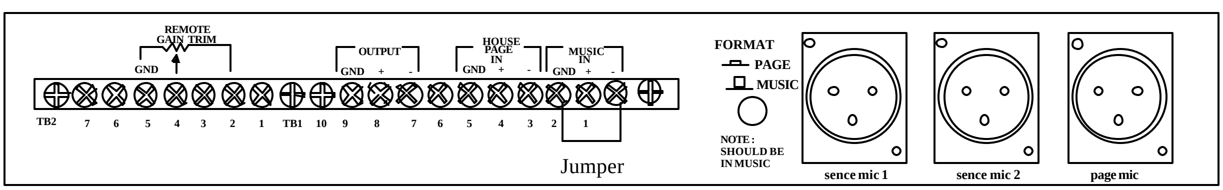
NOTE:

CPU CAN BE INSTALLED IN 1,2,3 OR 4 SLOT
AUDIO CAN BE INSTALLED IN 9,10,11 OR 12 SLOT
VIDEO CAN BE INSTALLED IN 13,14,15 OR 16 SLOT

MASTER SYMETRIX 571 SPL SETTINGS

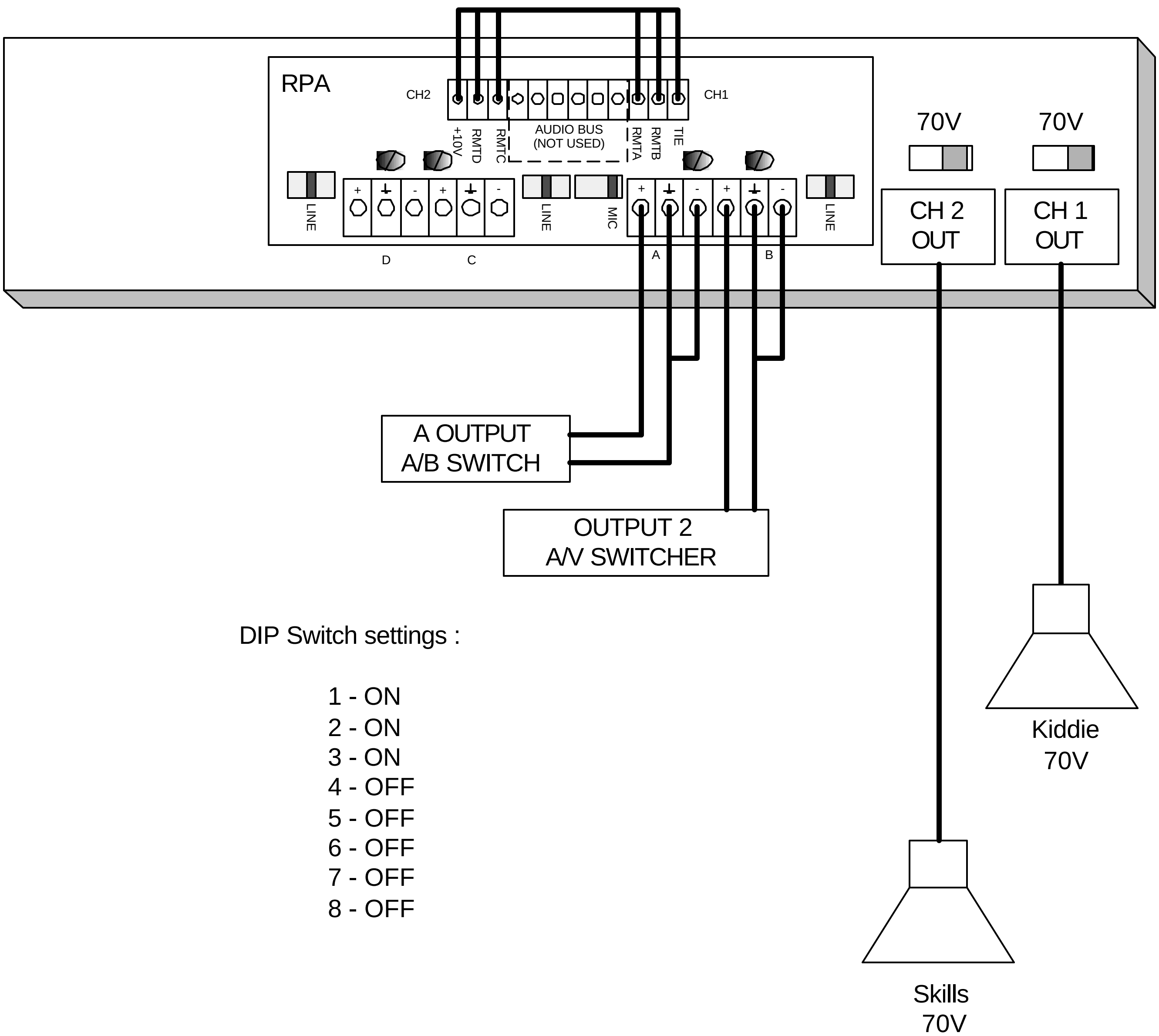


REAR VIEW OF MASTER SYMETRIX



Gameroom Amp PIP-RPA Module

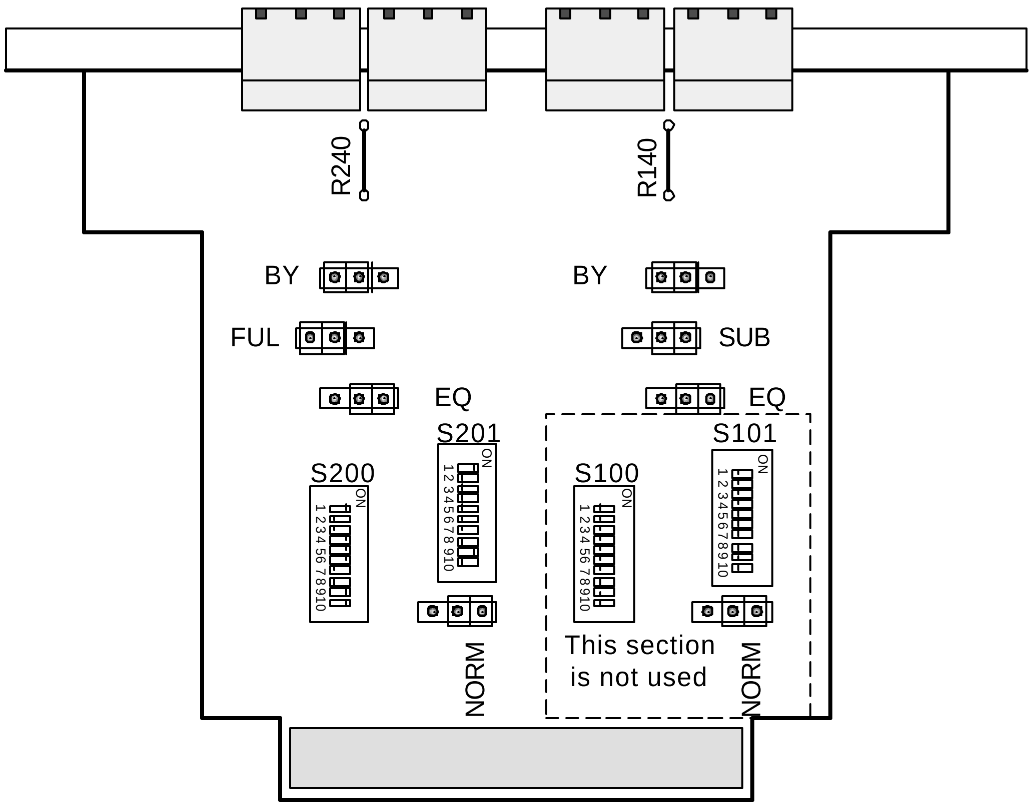
Crown Amp



DIP Switch settings :

1 - ON
2 - ON
3 - ON
4 - OFF
5 - OFF
6 - OFF
7 - OFF
8 - OFF

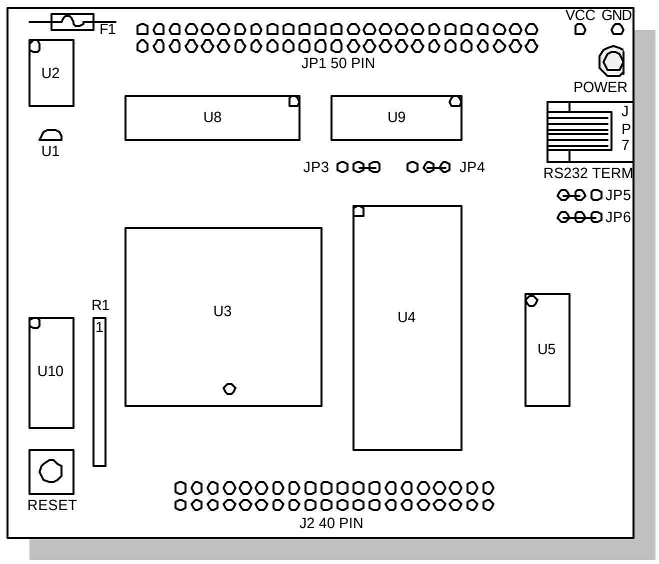
Show Room PIP-BEQ Module



Dip switch settings:

S200	S201
1 - ON	1 - ON
2 - OFF	2 - OFF
3 - OFF	3 - OFF
4 - ON	4 - OFF
5 - ON	5 - N/A
6 - ON	6 - OFF
7 - OFF	7 - OFF
8 - OFF	8 - OFF
9 - ON	9 - ON
10 - ON	10 - OFF

STUDIO C CPU CARD

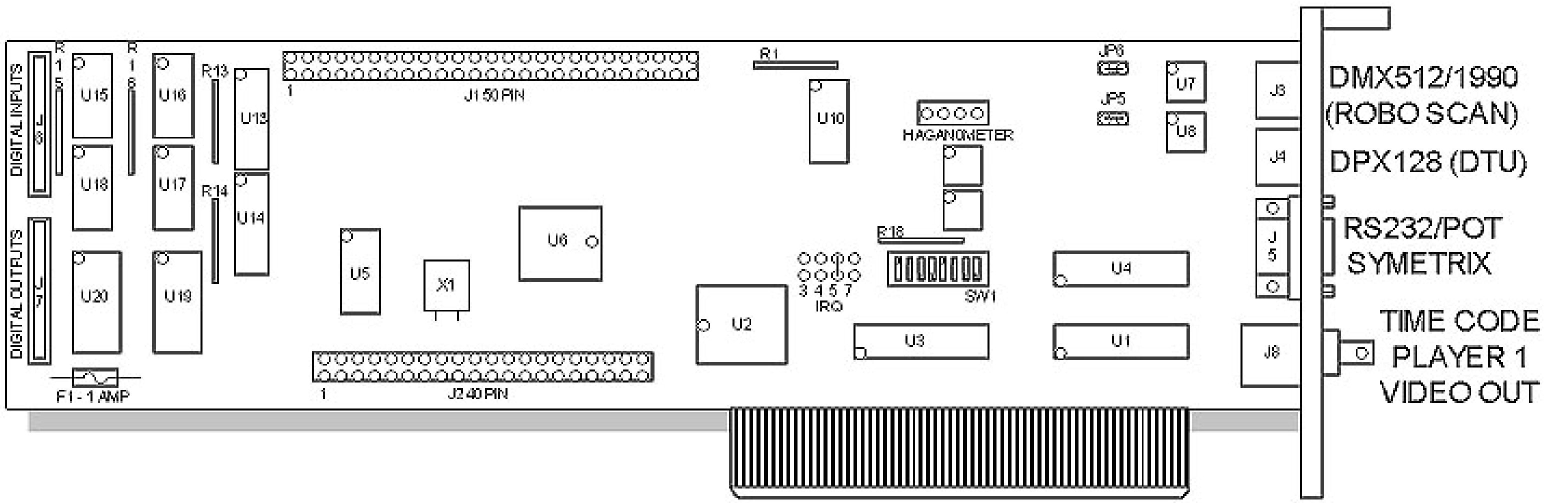


U1 - DS1233
U2 - ECS-300C "DUOSC" 16MHZ
U3 - MC68HC11F1CFN4
U4 - AT27C256R "PROM"
U5 - DS14C232CN
U6 - U7 - N/A
U8 - MC74HCT245AN
U9 - SP74HCT138N
R1 - 10K RES PACK (9413)
F1 - .5 - 1 AMP PICO FUSE

NOTE:

ALL CPU CARDS ARE THE SAME WITH THE EXCEPTION OF THE SOFTWARE ON THE PROM. IN ORDER FOR THE CPU TO WORK IN THE COP CONTROLLER YOU MUST MAKE SURE YOU HAVE A JUMPER ON JP6 PINS 2 AND 3. IN THE FUTURE ALL BOARDS WILL HAVE THIS FEATURE AS DEFAULT. YOU CAN USE A JUMPERED BOARD IN THE DTU OR TRANSMITTER CARD WITHOUT REMOVING THE JUMPER.

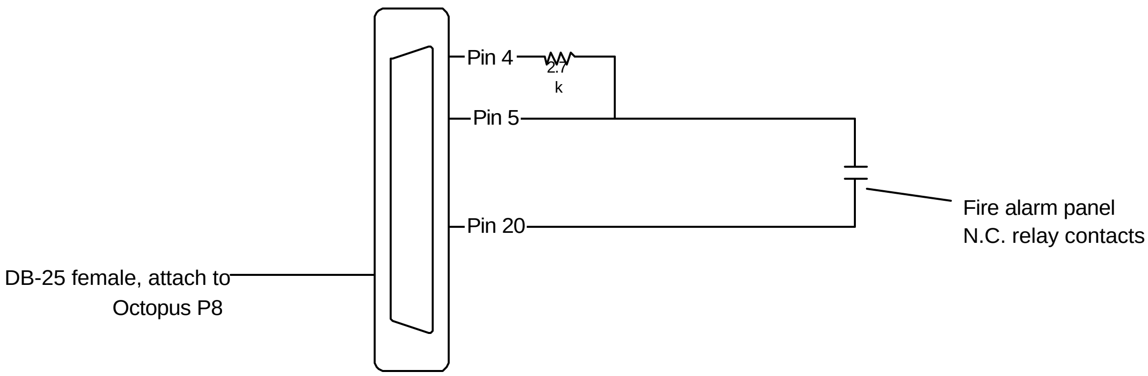
STUDIO C TRANSMITTER CARD



U1 - MC74HCT245AN
U2 - "SDT" 7130 / SA55J / S9721P
U3 - CD74HCT688E
U4 - MC74HCT245AN
U5 - CD74HCT04E
U6 - "XP" 68C681CJ
U7 - U8 - DS75176BN
U9 - N/A
U10 - DS1867-050
U11 - LM358AN
U12 - LM1881N

U13 - U14 - ZX74HCT244-2N
U15 - U18 "NEC" PS2501-4
U19 - U20 - UCN5801A
X1 - "ECLIPTEK" EC074 / 7.3728 MHZ
(ADD A 47K RES ACROSS PINS)
R1 - R13 - R14 - R18 - 10K RES PACK (9413)
R15 - R16 - 1K RES PACK (9417)
F1 - 1 AMP PICO FUSE NOT USED AT THIS TIME

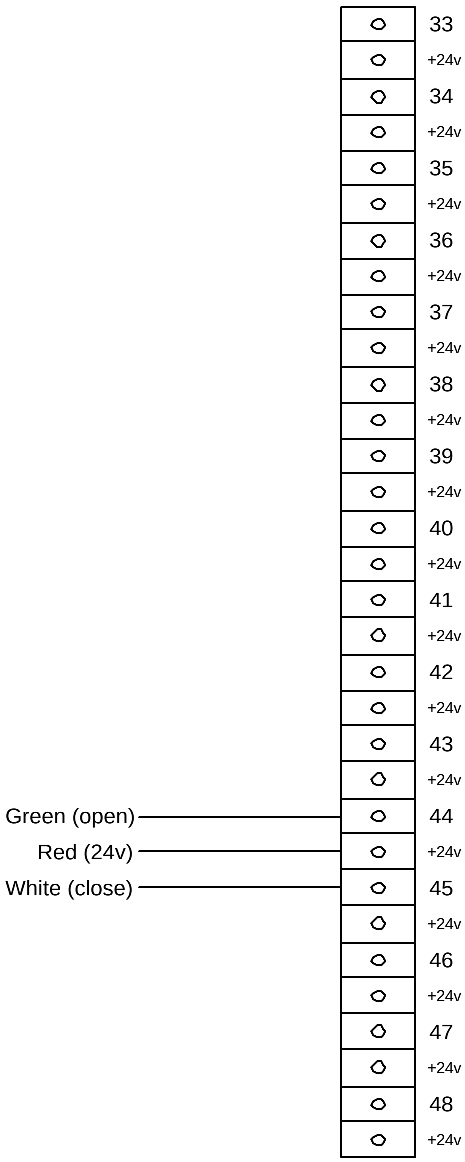
Studio C
Fire Alarm Adapter



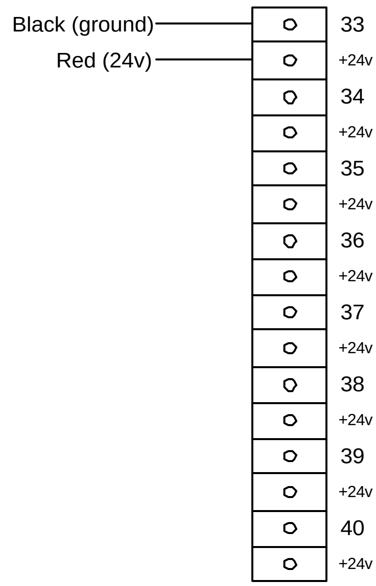
To enable the fire alarm feature in the software, go to the DOS prompt of the computer, and type:
edit cybrstar.ini
and press <Enter>
Use the arrow keys to go down to the line
Alarm=None
and change it to
Alarm = Fire
Go to the Edit program's "File" menu by pressing <Alt> F, and use the arrow keys and <Enter> key to save the changes, and then to exit the edit program.

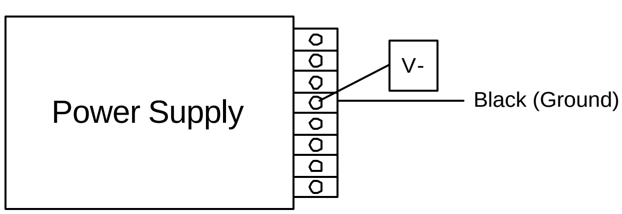
When the alarm contacts open, the computer will immediately mute the show audio and display the word "Fire" in the lower lefthand corner of the computer's monitor, and then it will exit the Cyberstar program and return to DOS in approximately 1 second.

Curtain Control Hookups in DTU #1

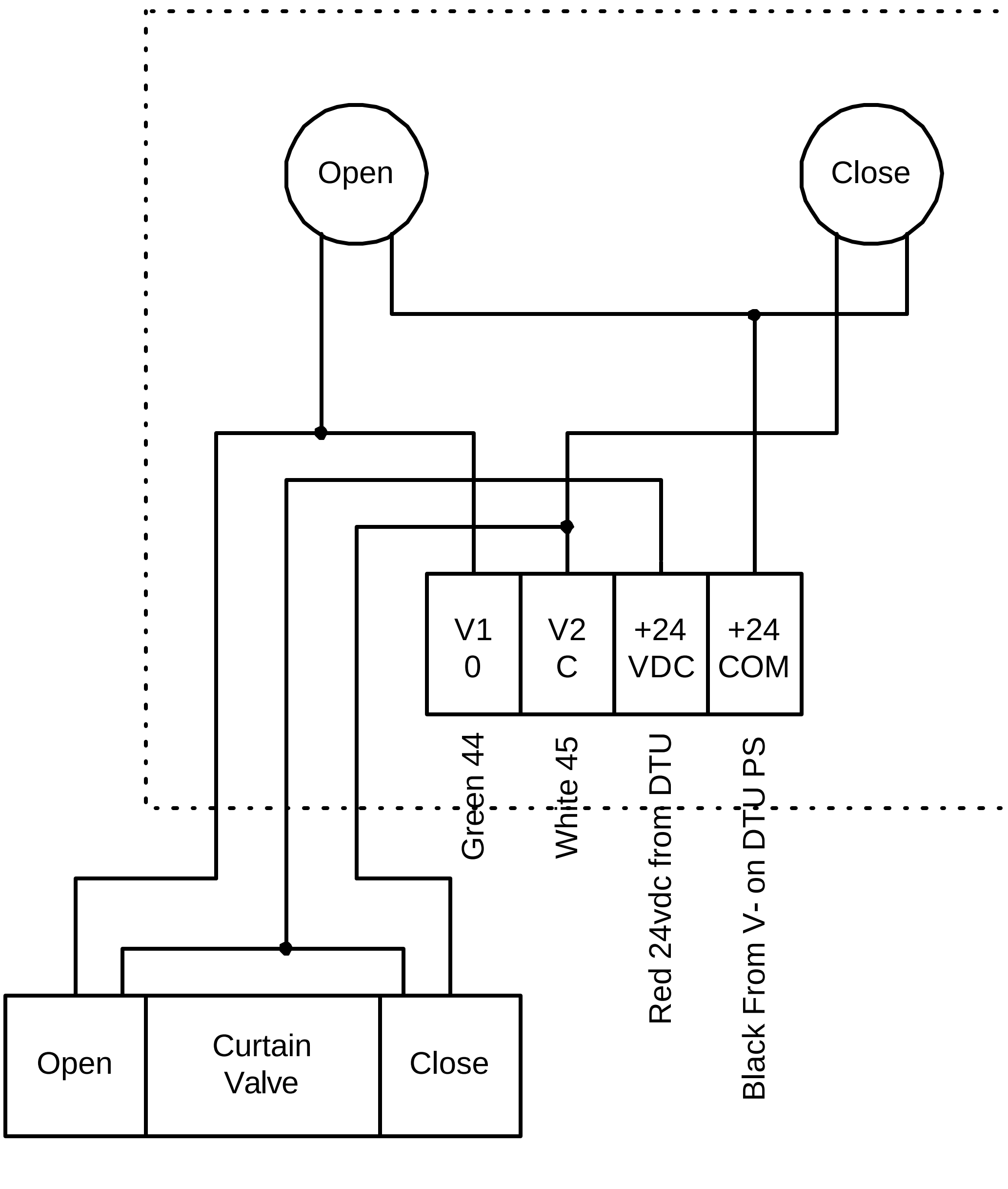


Dimmer Hookups in DTU #2



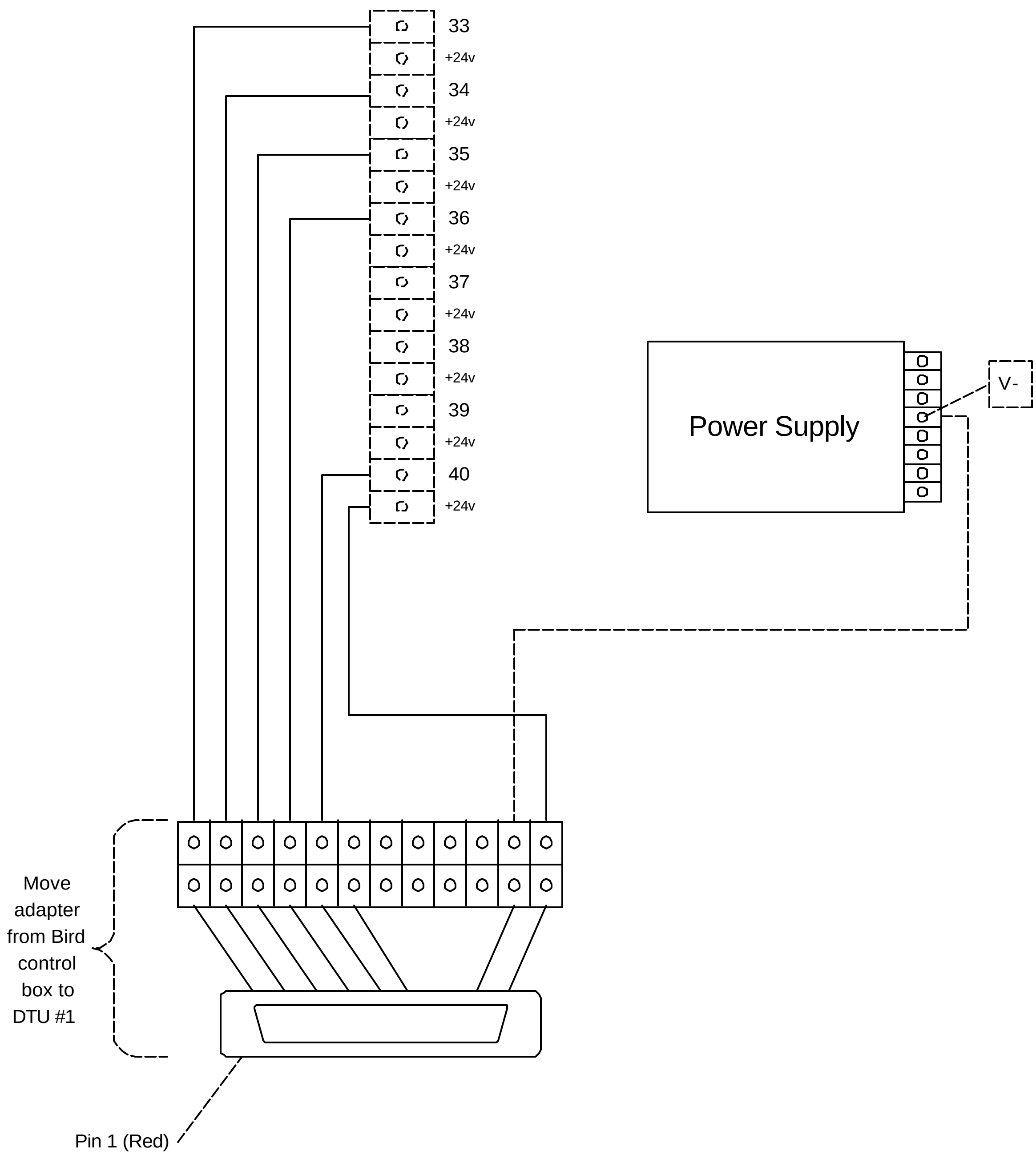


Studio C Curtain Control Box Wiring

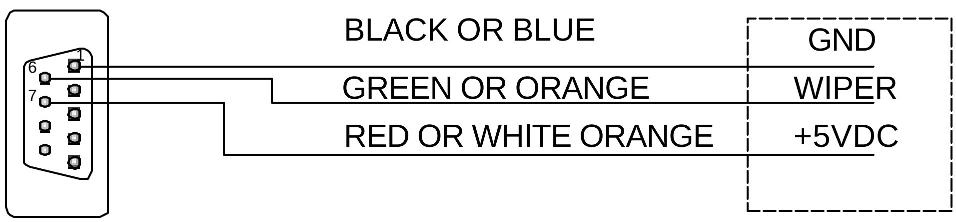


Valve = L12BB452B

Bird/Phone Cable Hookups in DTU #1



VOLUME CONTROL CABLE

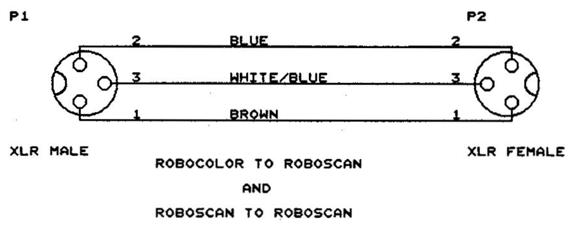


DB9 FEMALE
ON TRANSMITTER CARD

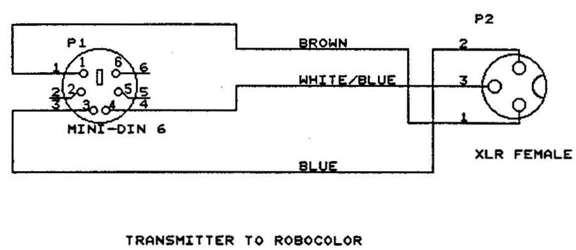
SYMETRIX 571 SPL
TERMINAL BLOCK

LENGTH 3 FT

USE MINIMUM 22 AWG MULTI CONDUCTOR NON- SHEILDED



QTY.	LENGTH
2	50 FT.



QTY.	LENGTH
1	100 FT.

PROPRIETARY AND CONFIDENTIAL

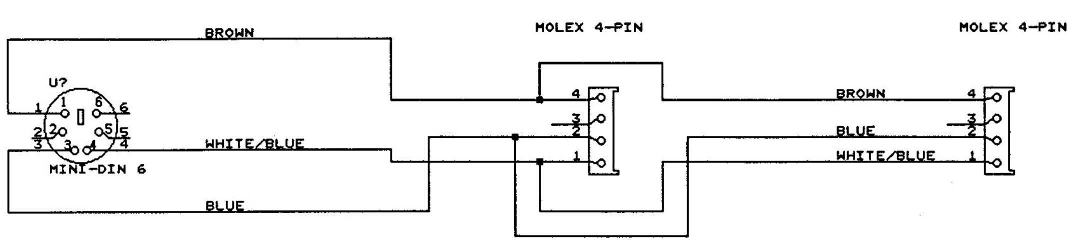
Philipsen Consulting
2310 E. Oakland Avenue
Suite 12A
Bloomington, IL 61701
(309) 433-5151

Title: DMX CABLES

Size: A | Document Number | REV: A

Date: October 7, 1998 | Sheet 1 of 1

BOTH CONNECTORS ARE VIEWED FROM THE BOTTOM



QTY.	LENGTH
1	30 FT.

NOTE: EITHER MOLEX PLUG MAY BE PLUGGED INTO EITHER DTU.

6-PIN MODULAR WIRING:

PINS TOWARD YOU (BOTTOM) WITH CABLE OPENING TO LEFT

TOP = PIN1 - N/C
PIN2 - BLU
PIN3 - WHT/BLU
PIN4 - ORN
PIN5 - WHT/ORN
PIN6 - N/C

PROPRIETARY AND CONFIDENTIAL

Philipsen Consulting
2310 E. Oakland Avenue
Suite 12A
Bloomington, IL 61701
(309) 433-5151

Title: DTU DATA CABLE

Size: A | Document Number | REV: A

Date: October 7, 1998 | Sheet 1 of 1

Interactive Console

Kid Switcher cable pinout

12-pin Molex

Pin	Wire	Function
Pin #1	Black	Ground
Pin #2	White	Switch #1 (Scan Cam)
Pin #3	Red	Switch #2 (Chroma Key)
Pin #4	Green	Switch #3 (Spy Cam #1)
Pin #5	Brown	Switch #4 (U-Too Cam)
Pin #6	Blue	Switch #5 (Spy Cam #2)
Pin #7	Orange	Lamp #1 (Scan Cam)
Pin #8	Yellow	Lamp #2 (Chroma Key)
Pin #9	Violet	Lamp #3 (Spy Cam #1)
Pin#10	Gray	Lamp #4 (U-Too Cam)
Pin#11	Pink	Lamp #5 (Spy Cam #2)
Pin#12 not used		

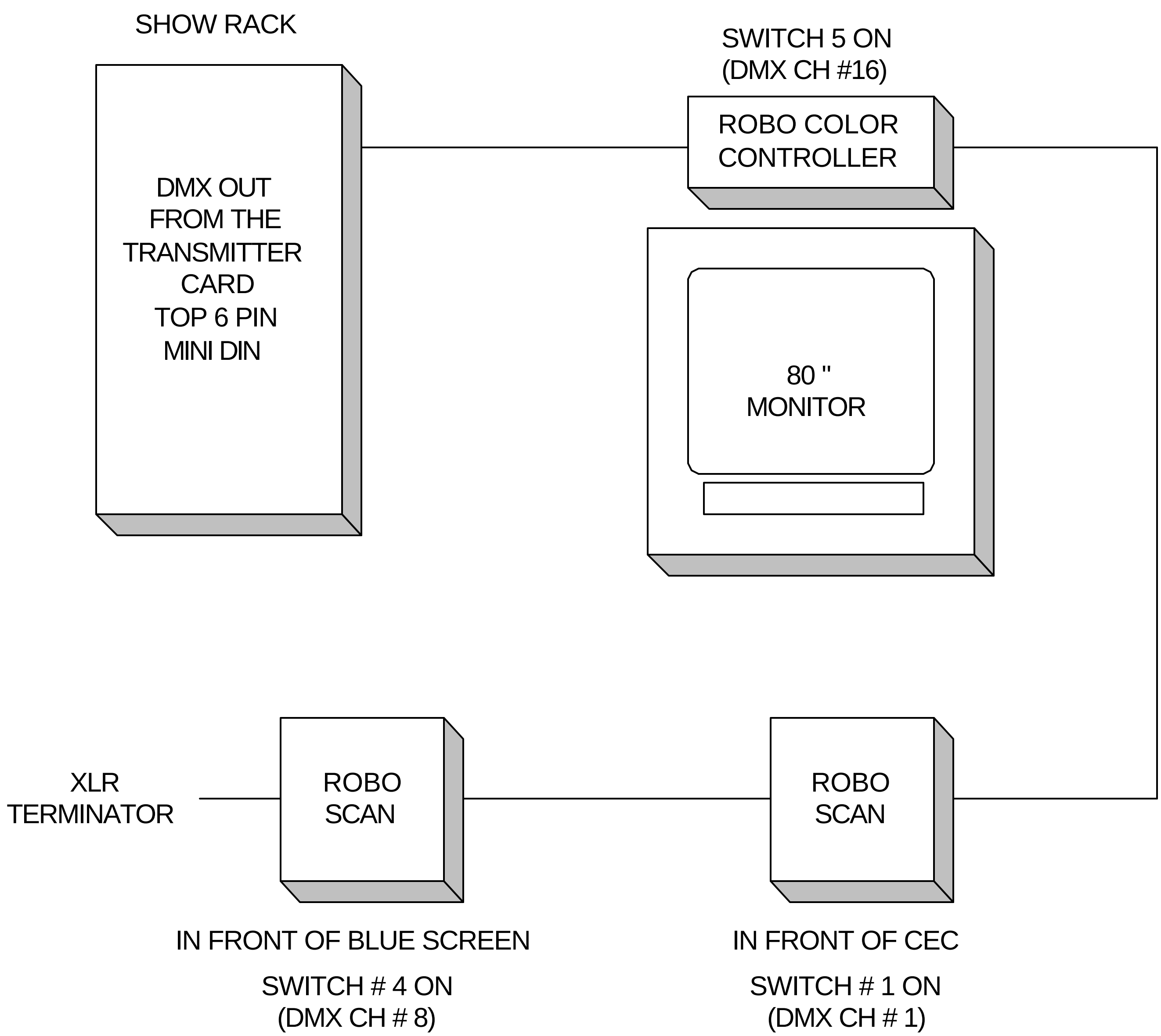
Joystick cable pinout

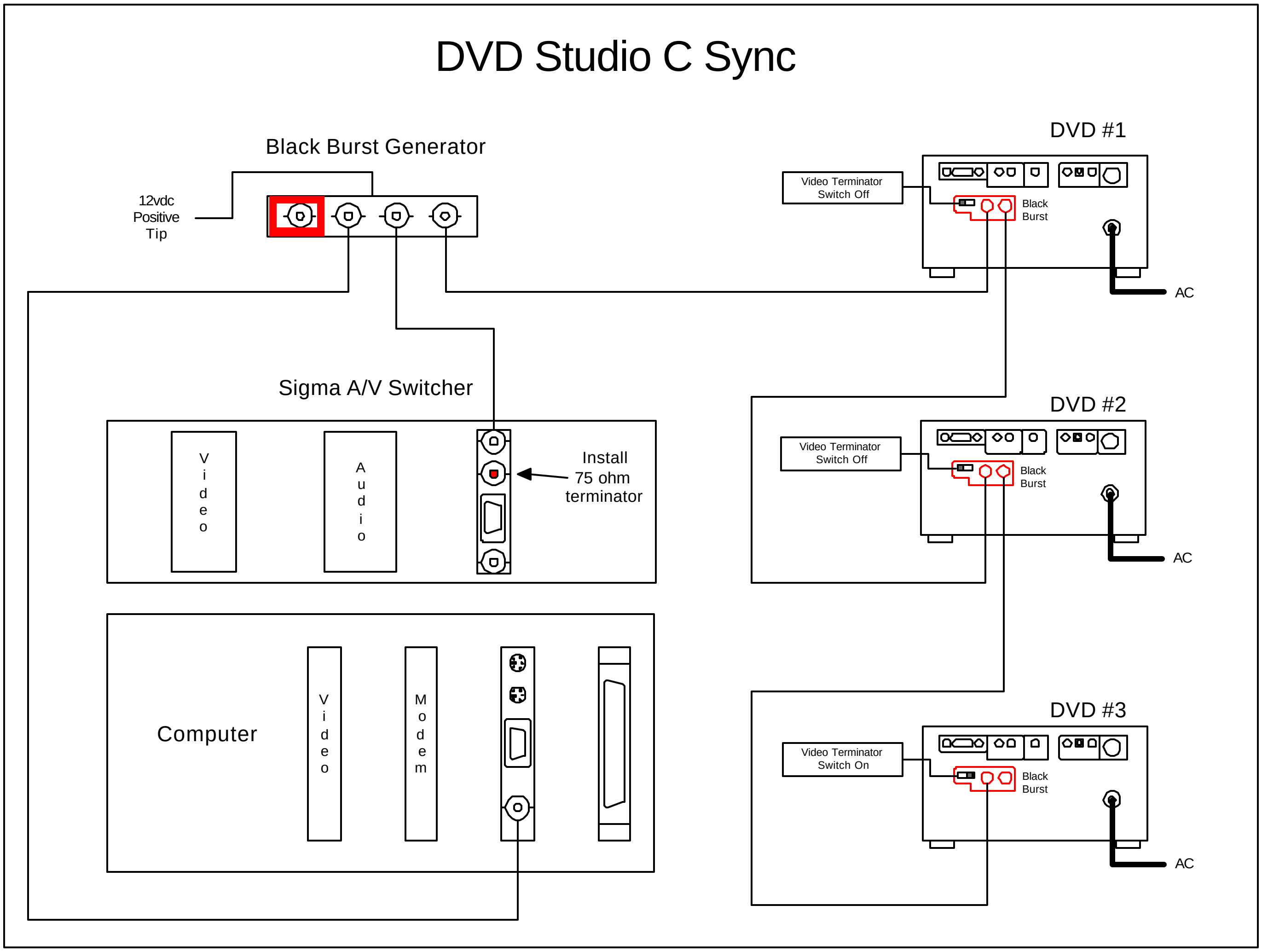
9-pin Molex

Pin	Wire	Function
Pin #1	Red	Up
Pin #2	Blue	Down
Pin #3	White	Left
Pin #4	Orange	Right
Pin #5	Green	Zoom out
Pin #6	Yellow	Zoom in
Pin #7	Black	Ground
Pin #8 Unused		
Pin #9 Unused		

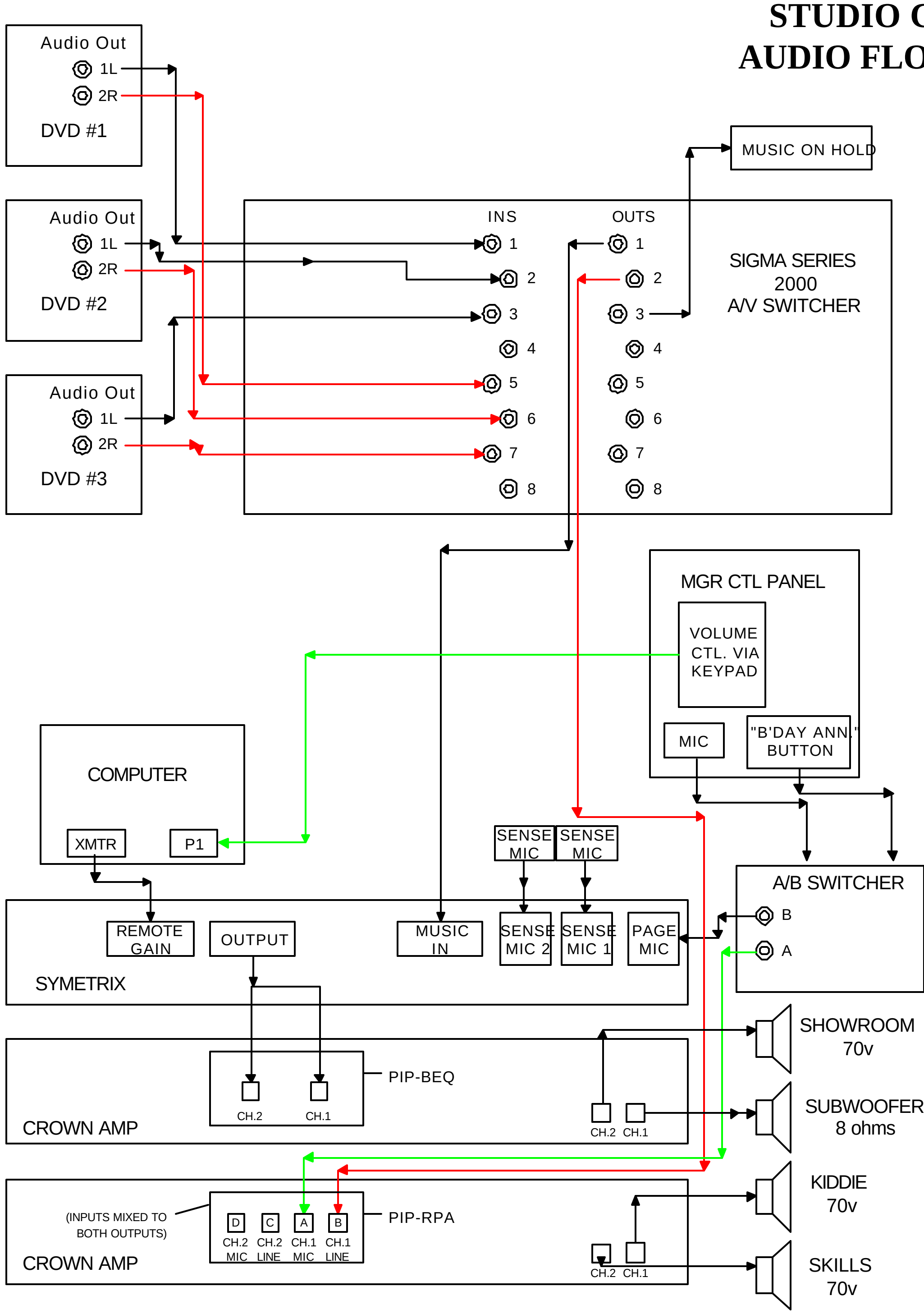
[Note: Button lamps on the joystick panel are wired to the fused (non-chasing) output of the console's chaselight controller.]

DMX WIRING


SHOW RACK
DMX OUT
FROM THE
TRANSMITTER
CARD
TOP 6 PIN
MINI DIN
SWITCH 5 ON
(DMX CH #16)
ROBO COLOR
CONTROLLER
80 "
MONITOR
XLR
TERMINATOR
ROBO
SCAN
ROBO
SCAN
IN FRONT OF BLUE SCREEN
SWITCH # 4 ON
(DMX CH # 8)
IN FRONT OF CEC
SWITCH # 1 ON
(DMX CH # 1)

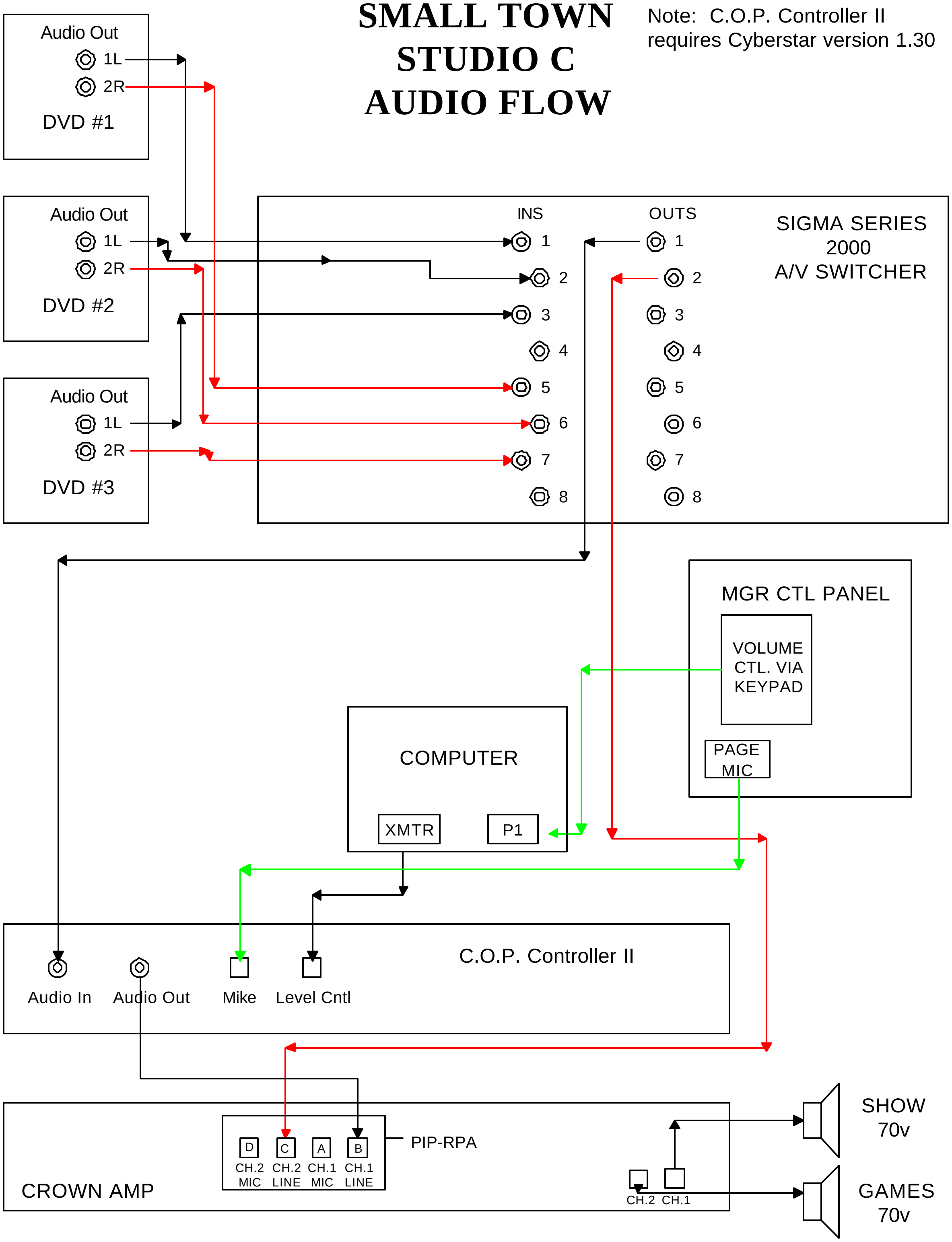

DVD Studio C Sync
Black Burst Generator
12vdc
Positive
Tip
DVD #1
Video Terminator
Switch Off
Black
Burst
AC
Sigma A/V Switcher
Video
Audio
Install
75 ohm
terminator
DVD #2
Video Terminator
Switch Off
Black
Burst
AC
Computer
Video
Modem
DVD #3
Video Terminator
Switch On
Black
Burst
AC

DVD
STUDIO C
AUDIO FLOW

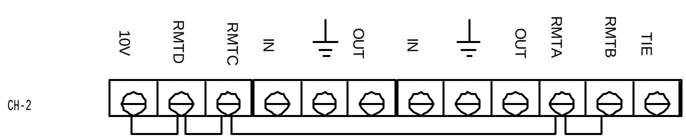


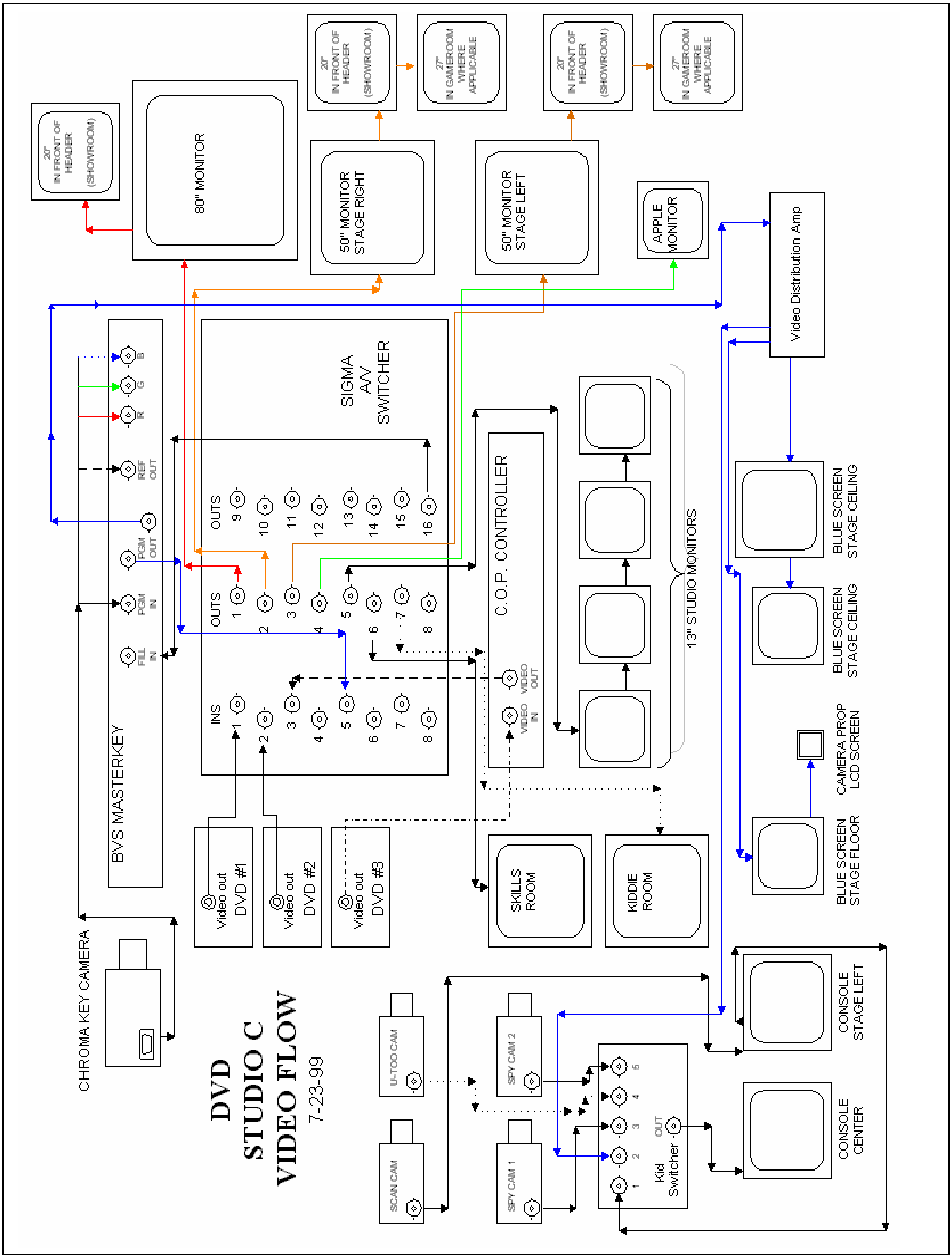
SMALL TOWN STUDIO C AUDIO FLOW

Note: C.O.P. Controller II requires Cyberstar version 1.30

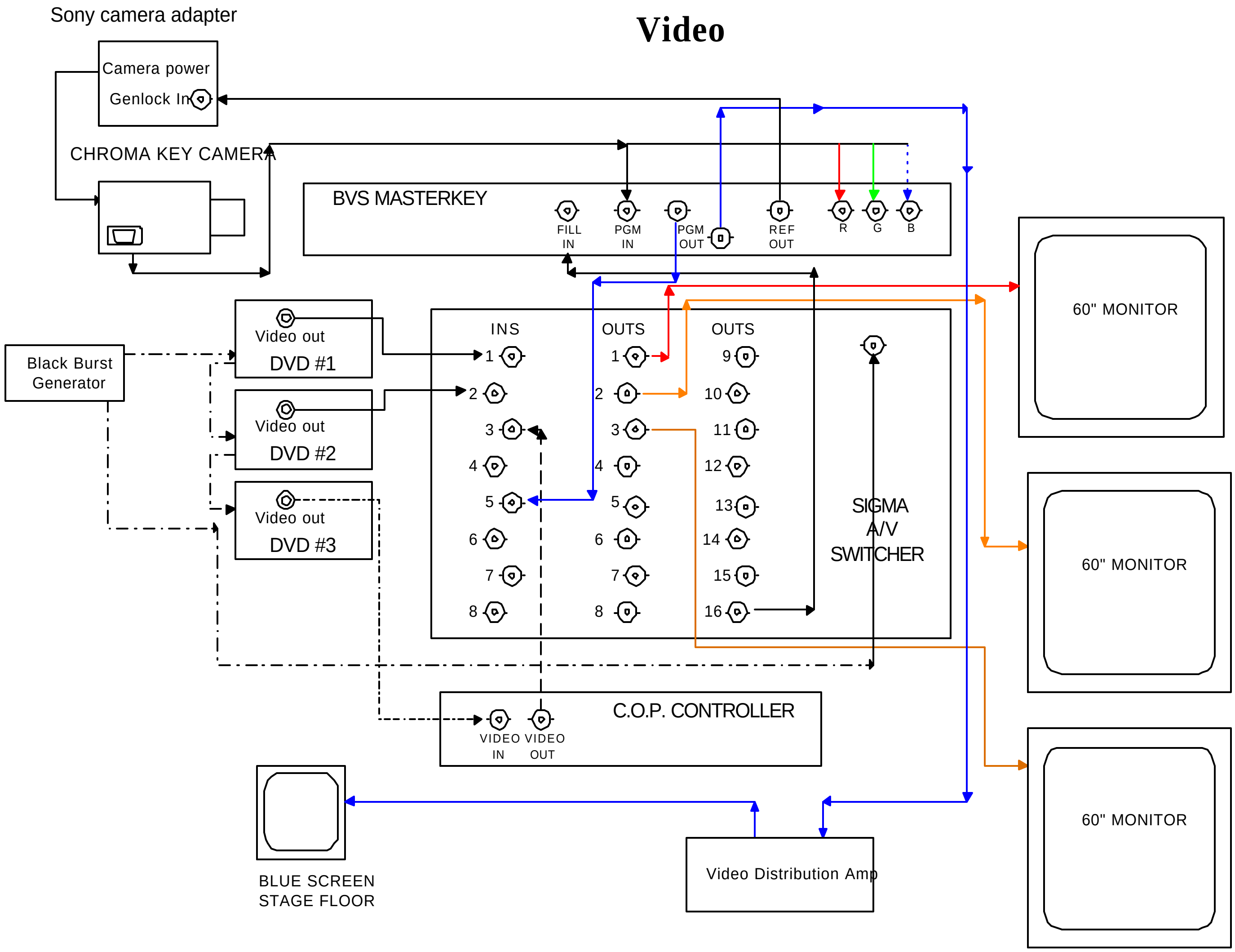


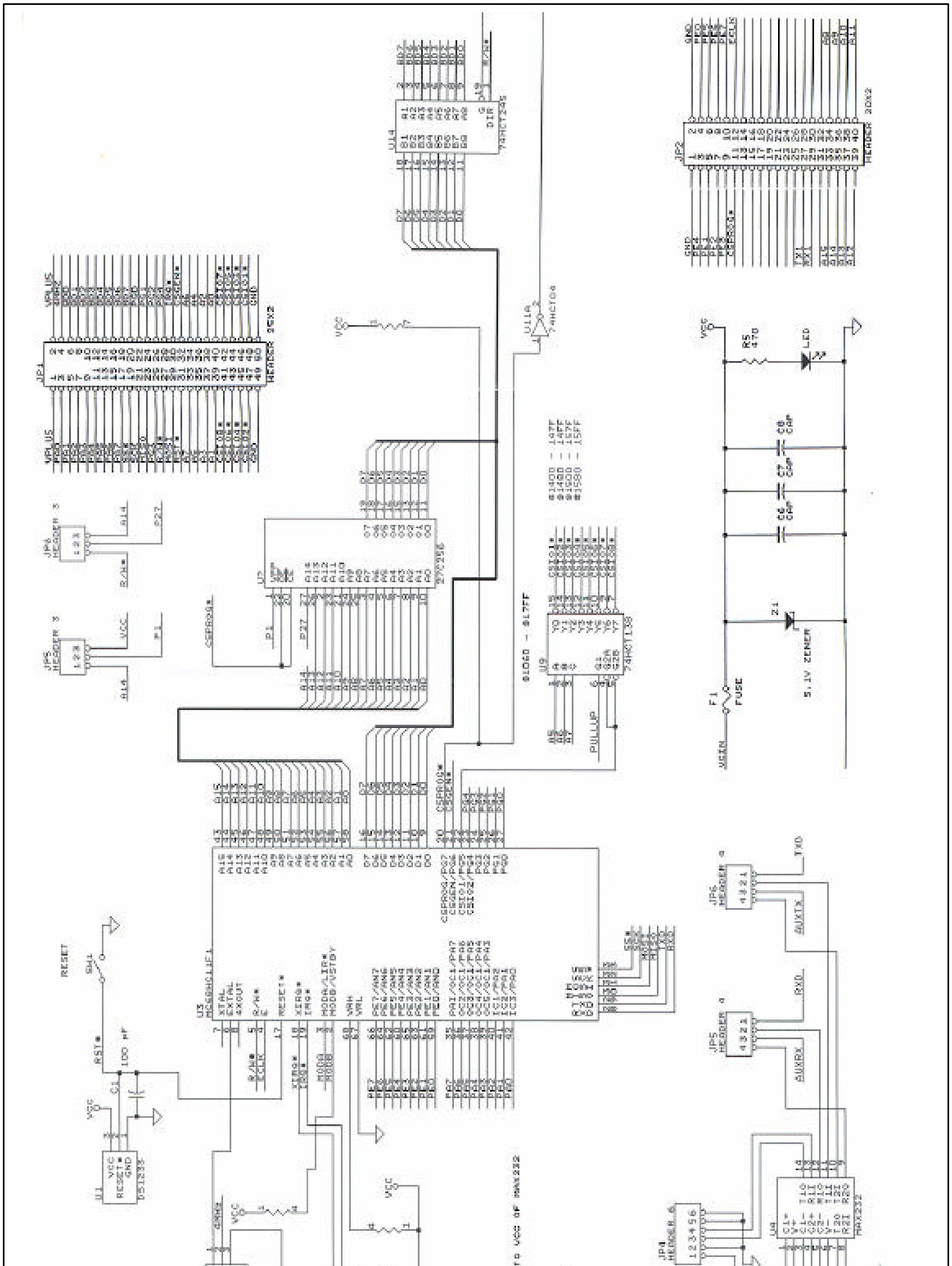
SMALL TOWN RPA WIRING



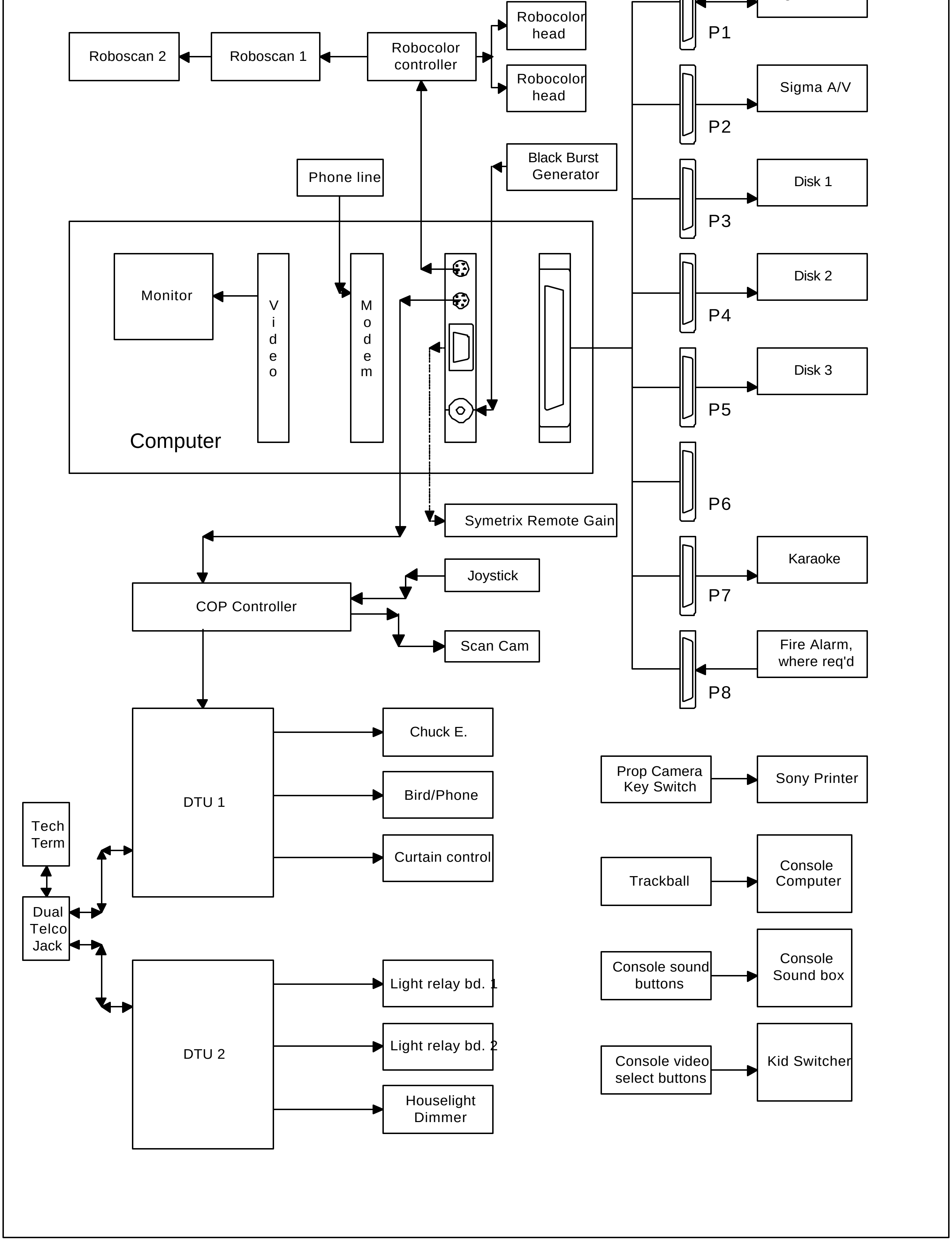

DVD
STUDIO C
VIDEO FLOW
7-23-99
CHROMA KEY CAMERA
BVS MASTERKEY
FILL IN
PGM IN
PGM OUT
REF OUT
R
G
B
SIGMA A/V SWITCHER
INS
OUTS
Video out DVD #1
Video out DVD #2
Video out DVD #3
80" MONITOR
20" IN FRONT OF HEADER (SHOWROOM)
27" IN GAMEROOM WHERE APPLICABLE
50" MONITOR STAGE RIGHT
50" MONITOR STAGE LEFT
APPLE MONITOR
Video Distribution Amp
C.O.P. CONTROLLER
VIDEO IN
VIDEO OUT
13" STUDIO MONITORS
BLUE SCREEN STAGE CEILING
BLUE SCREEN STAGE FLOOR
CAMERA PROP LCD SCREEN
SKILLS ROOM
KIDDIE ROOM
SCAN CAM
U-TOO CAM
SPY CAM 1
SPY CAM 2
Kid Switcher
OUT
CONSOLE STAGE LEFT
CONSOLE CENTER

Small Town Studio C
Video

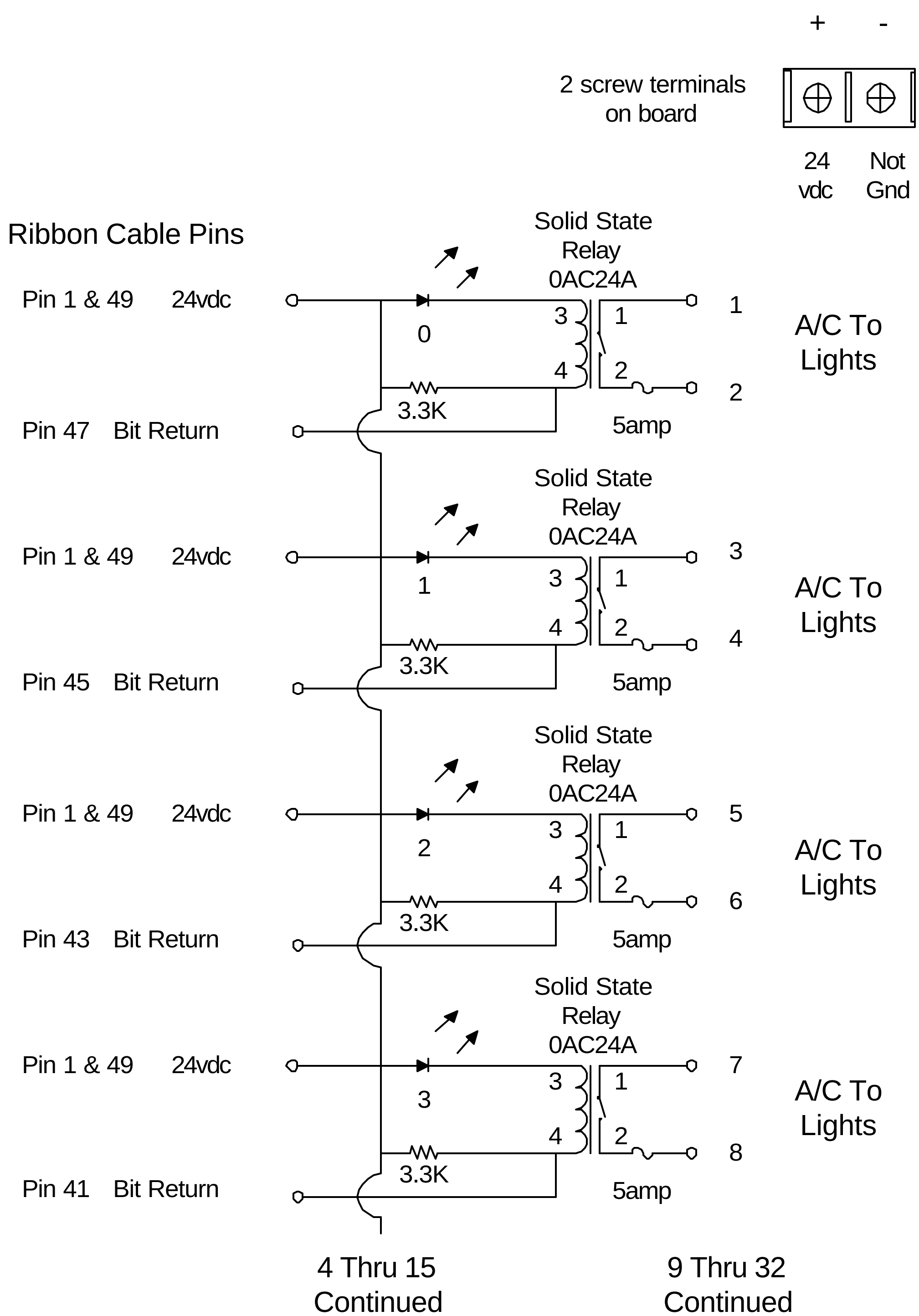




DVD Studio C Control Flow

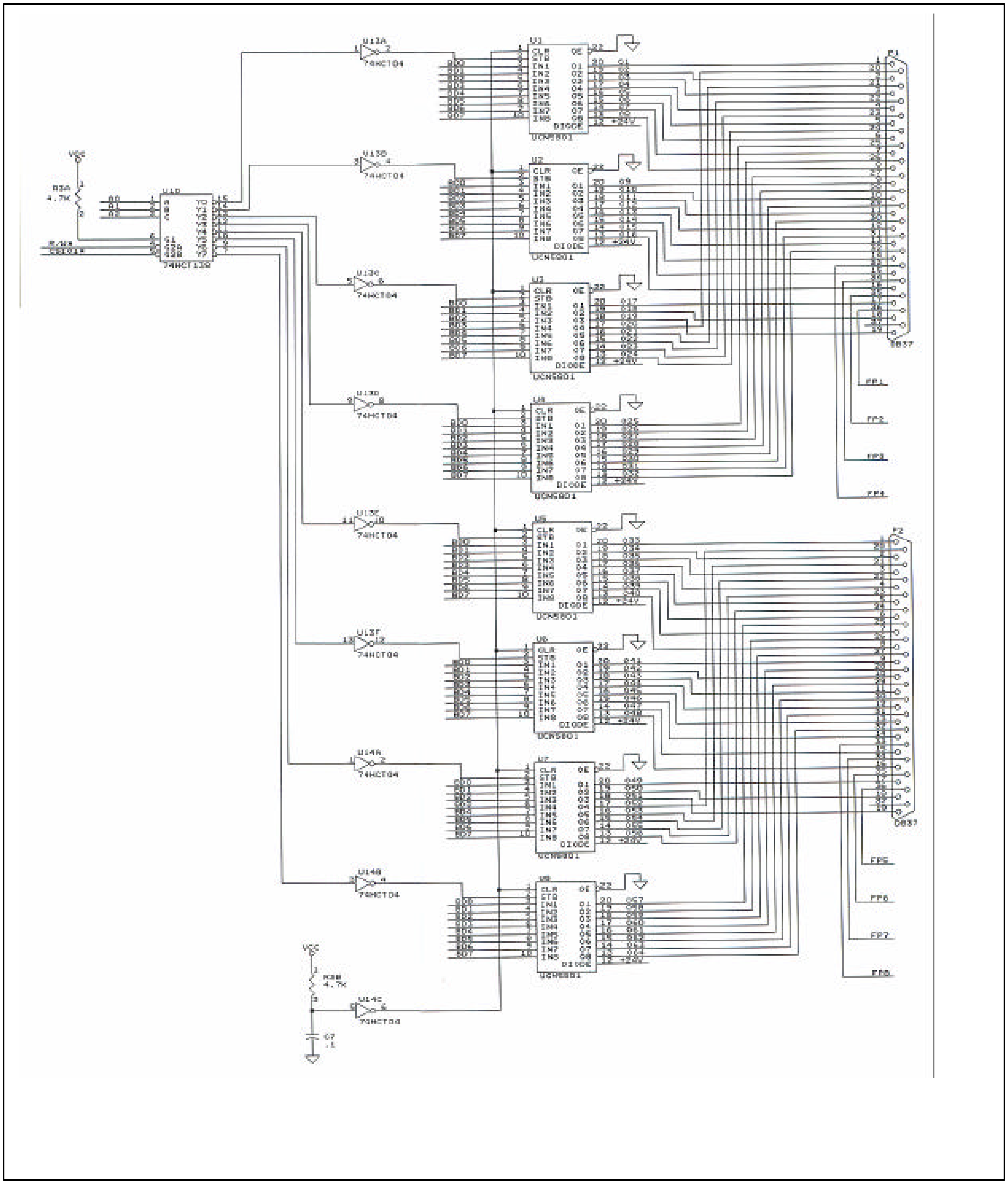


Gordos Relay Board

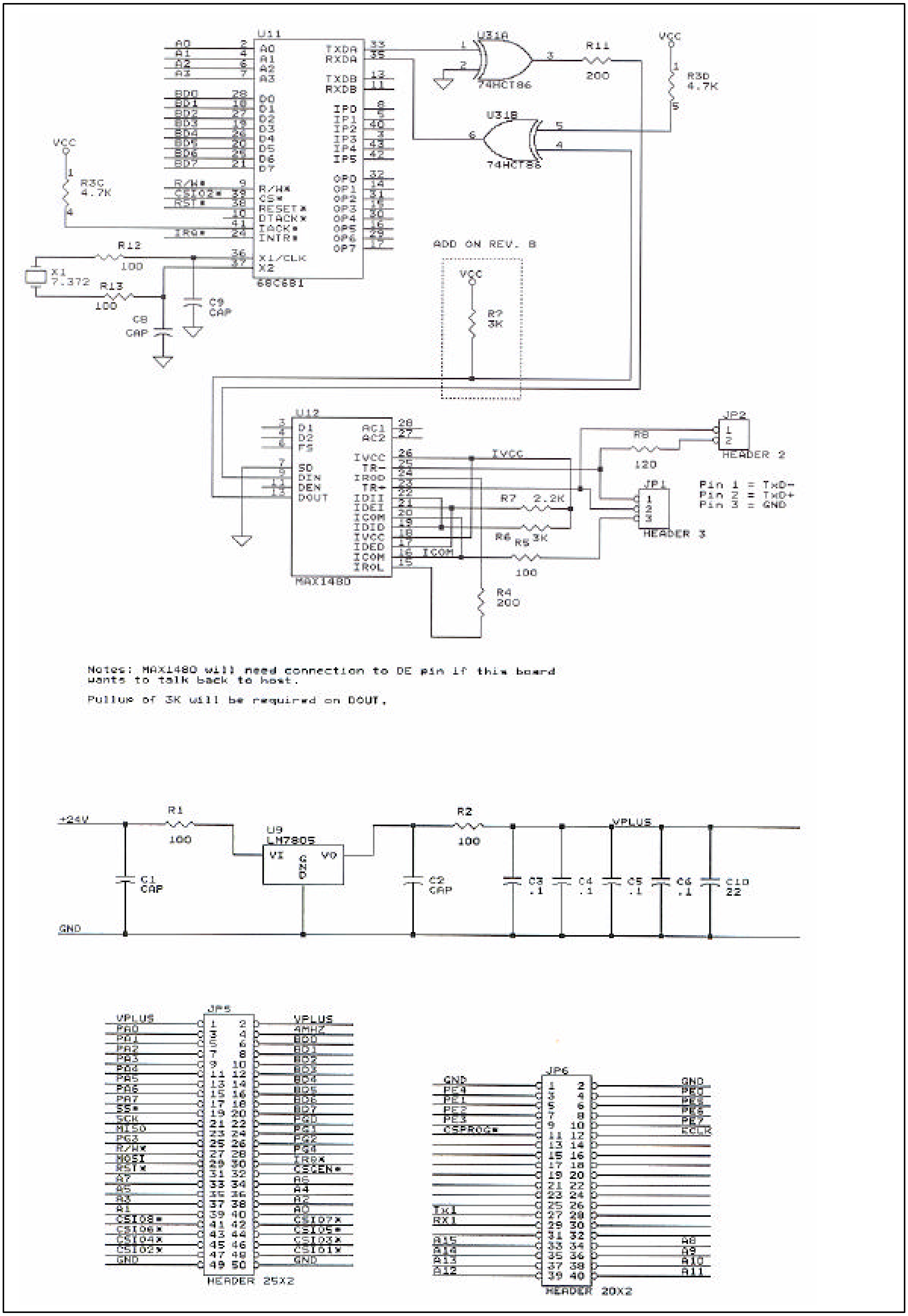


Note: There is no ground on this board. To check your 24vdc you must use a ground from your DTU box. You can remove 1 relay and insert your meter leads on pins 3 and 4 of the relay socket and then activate that bit (Turn on the led), using your tech term on the DTU, you will then read 24vdc when the light is on.

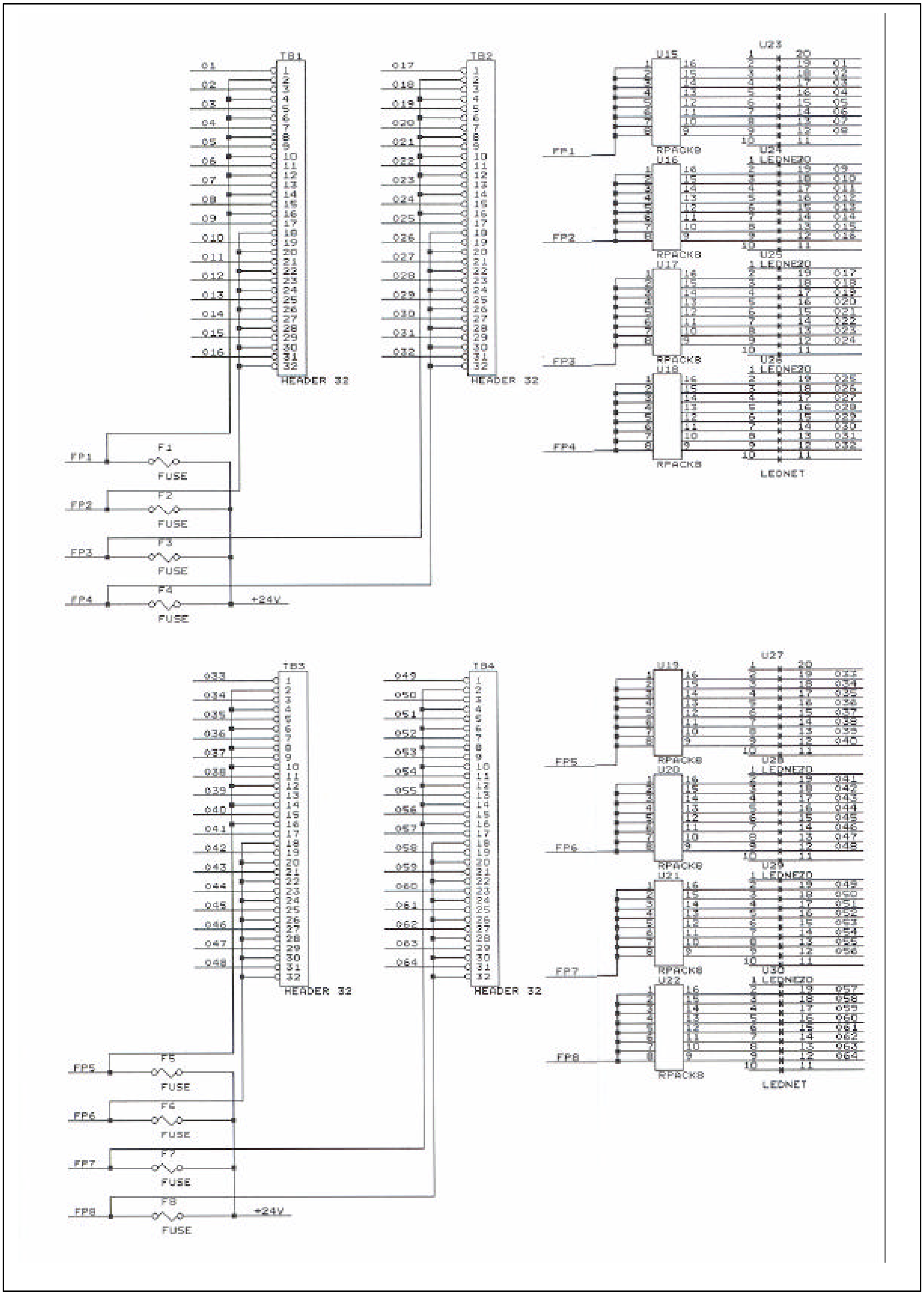
DTU Main Board A



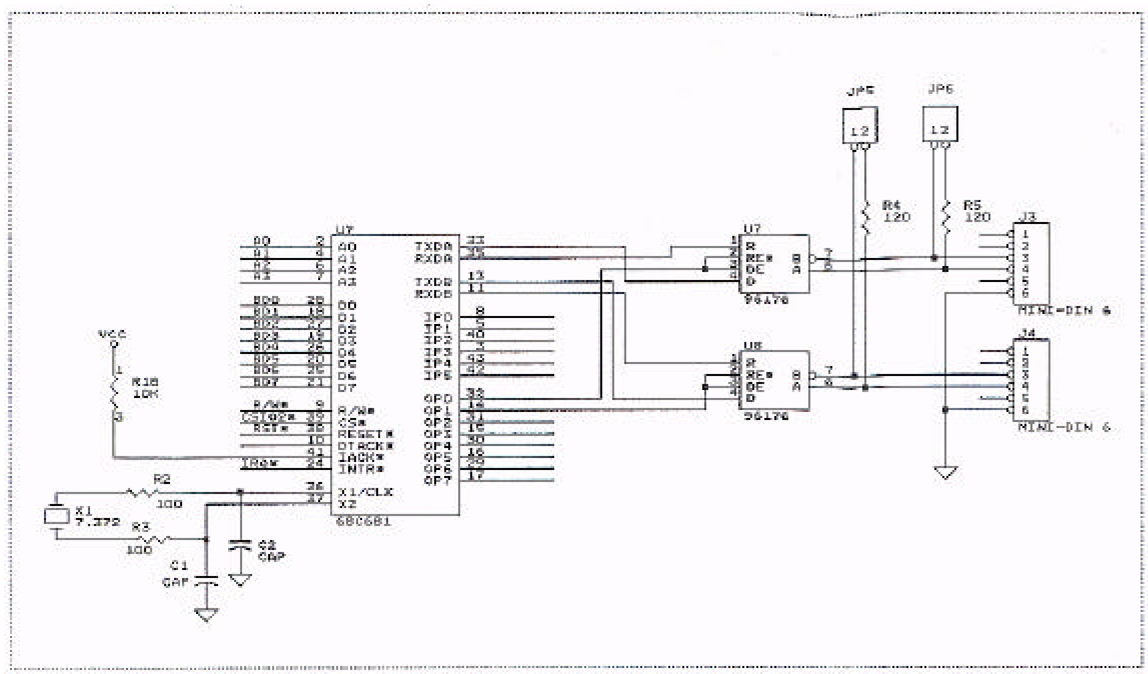
DTU MAIN BOARD B



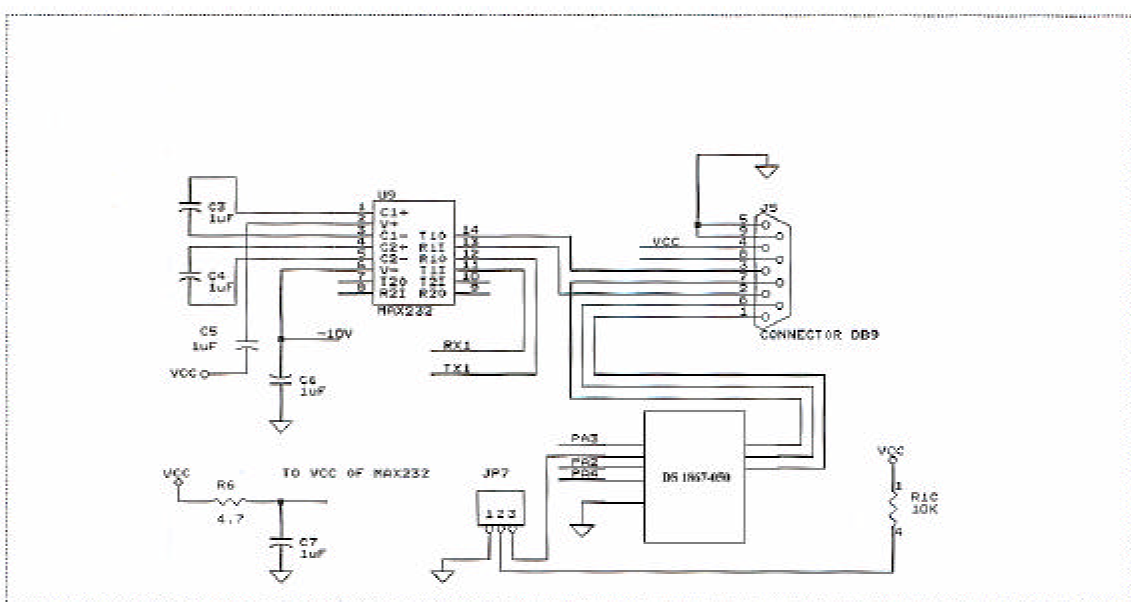
DTU MAIN BOARD C



Transmitter Card A

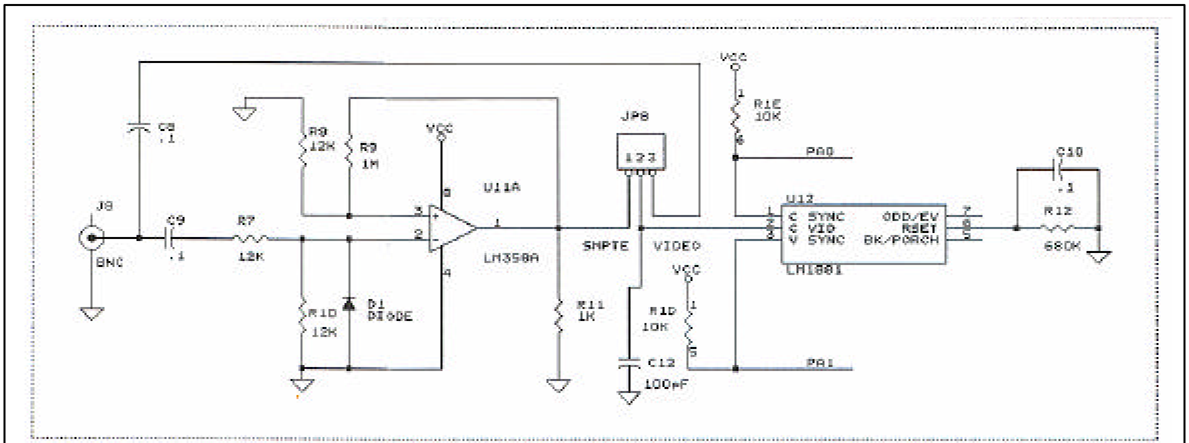


UART / RS485 TRANSMITTERS

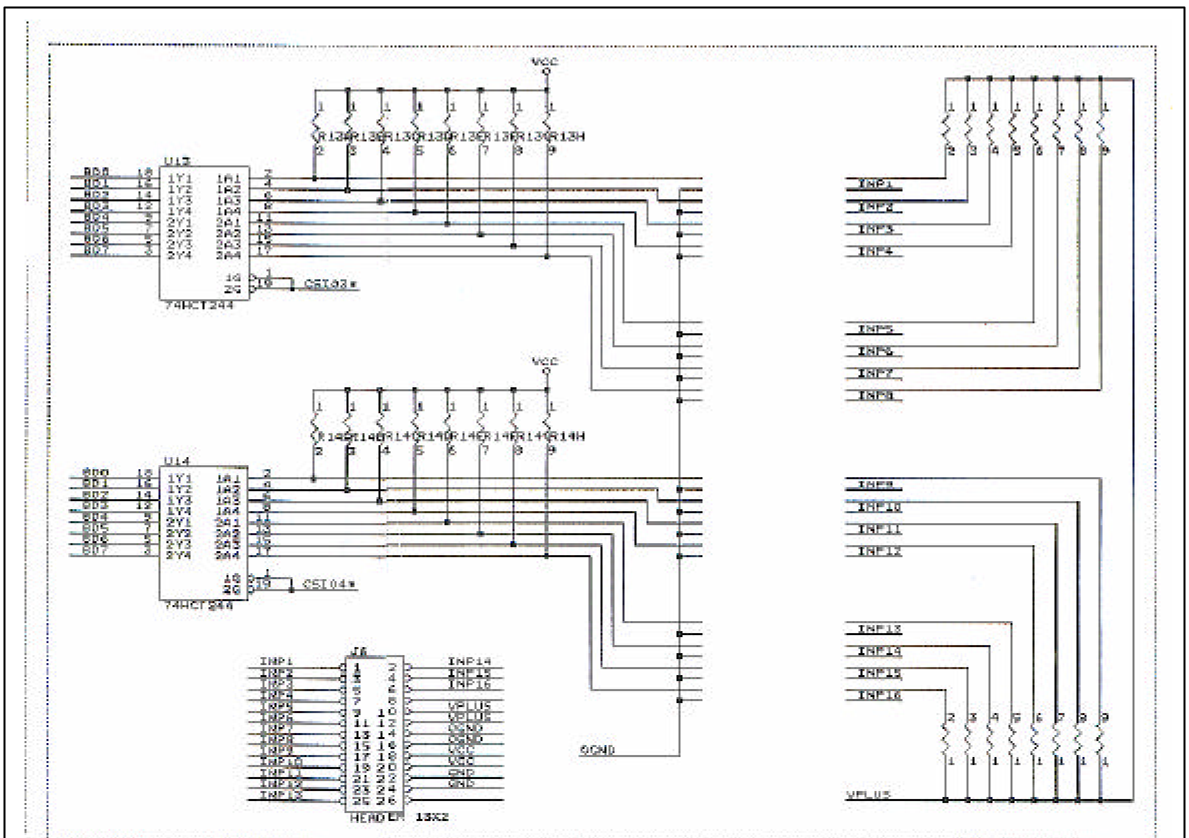


RS232 / DIGITAL POTENTIOMETER

Transmitter Card B

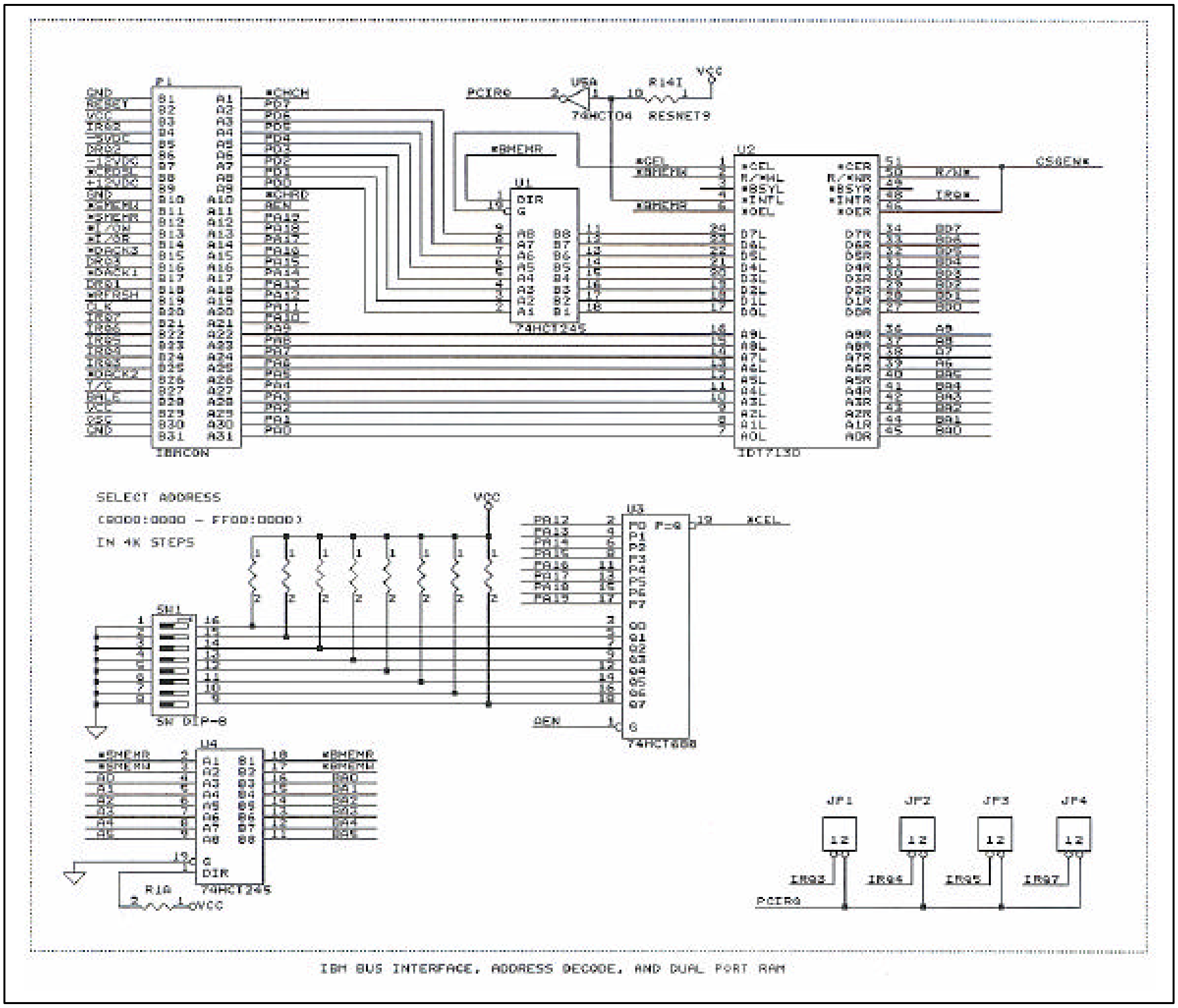


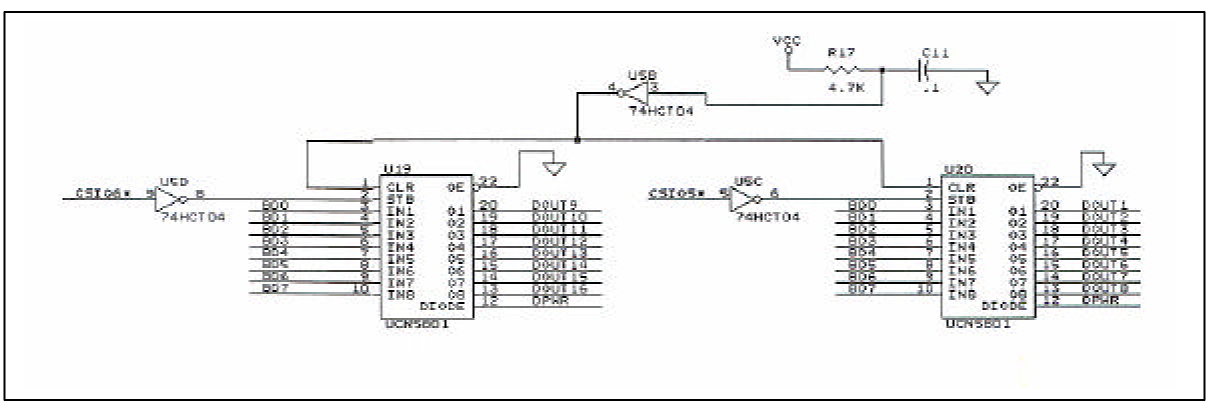
VIDEO SYNC STRIPPER / SMPTE DECODER CIRCUIT



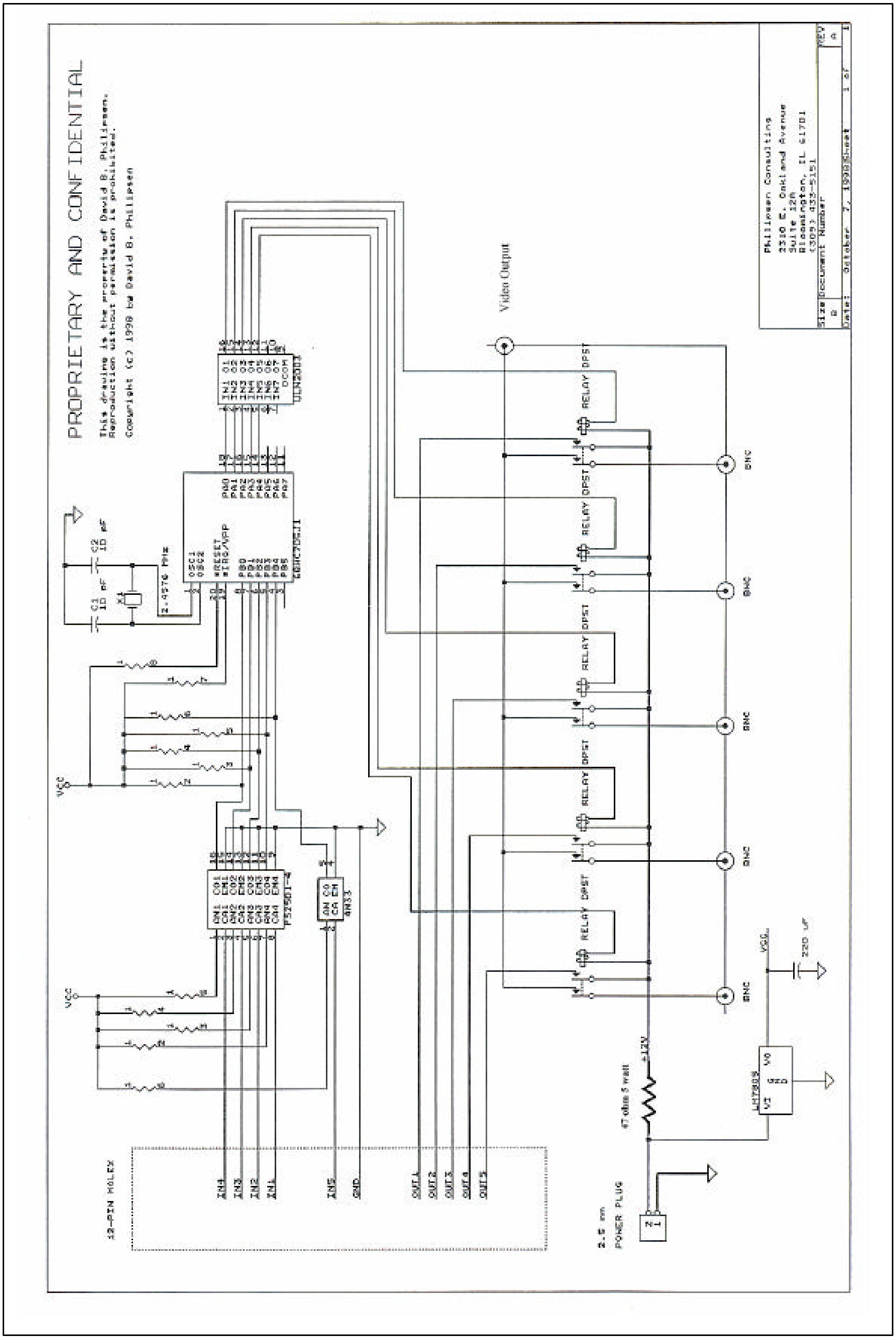
16 OPTO-ISOLATED INPUTS

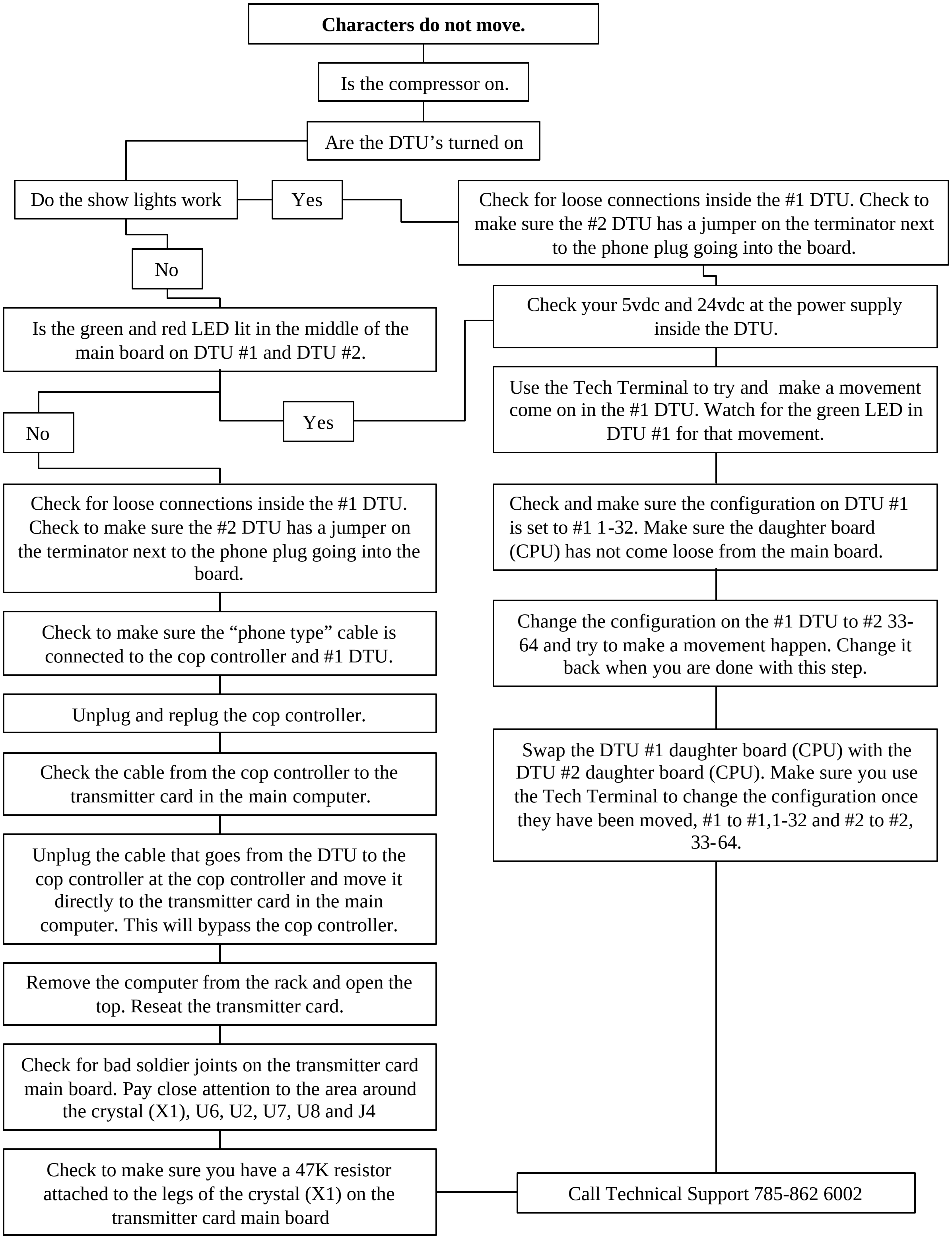
Transmitter Card B





Kid Switcher




Characters do not move.
Is the compressor on.
Are the DTU’s turned on
Do the show lights work
Yes
Check for loose connections inside the #1 DTU. Check to make sure the #2 DTU has a jumper on the terminator next to the phone plug going into the board.
No
Check your 5vdc and 24vdc at the power supply inside the DTU.
Is the green and red LED lit in the middle of the main board on DTU #1 and DTU #2.
Use the Tech Terminal to try and make a movement come on in the #1 DTU. Watch for the green LED in DTU #1 for that movement.
Yes
No
Check for loose connections inside the #1 DTU. Check to make sure the #2 DTU has a jumper on the terminator next to the phone plug going into the board.
Check and make sure the configuration on DTU #1 is set to #1 1-32. Make sure the daughter board (CPU) has not come loose from the main board.
Check to make sure the “phone type” cable is connected to the cop controller and #1 DTU.
Change the configuration on the #1 DTU to #2 33-64 and try to make a movement happen. Change it back when you are done with this step.
Unplug and replug the cop controller.
Swap the DTU #1 daughter board (CPU) with the DTU #2 daughter board (CPU). Make sure you use the Tech Terminal to change the configuration once they have been moved, #1 to #1,1-32 and #2 to #2, 33-64.
Check the cable from the cop controller to the transmitter card in the main computer.
Unplug the cable that goes from the DTU to the cop controller at the cop controller and move it directly to the transmitter card in the main computer. This will bypass the cop controller.
Remove the computer from the rack and open the top. Reseat the transmitter card.
Check for bad soldier joints on the transmitter card main board. Pay close attention to the area around the crystal (X1), U6, U2, U7, U8 and J4
Check to make sure you have a 47K resistor attached to the legs of the crystal (X1) on the transmitter card main board
Call Technical Support 785-862 6002

Manager Control Panel is locked up or not functioning

Power the manager control panel off and then on. Then reboot the show

Does the display glow on the manager control panel

No

Remove the display from the wall and check the 12vdc power from the wall wart transformer

Yes I have 12vdc and the interface board is connected

Call Technical Support

785 862 6002

Yes

Power down the manager control panel. Apply pressure to the upper left corner of the screen on the manager control panel while powering the unit up. Check the settings to make sure they are,

Baud rate - 57600, Parity - none, Data bits 8, Stop bits -1

Press done when you are finished checking.

Check the manger control panel cable that connects to P1 on the back of the computer in the rack. Then check to make sure it is connected to the back of the manager control panel.

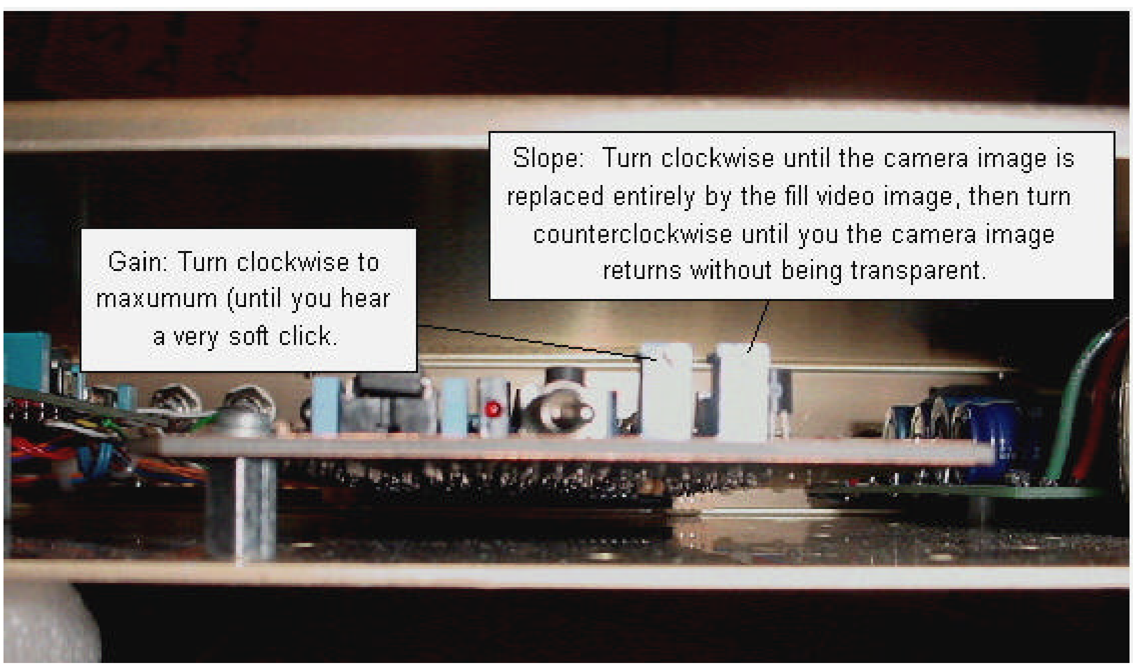
Unplug P1, at the octopus on the back of the computer, on the rack. Attach your keyboard to the main computer.

Turn the "Num Lock" and the "Caps Lock" on the keyboard on. Press enter and watch the lower left corner of your main computer monitor on the rack. If will prompt you for your password. Use the number keys to enter your stores password. It will then display a selection of items you can do, [S]tart up, etc. If you are starting the first show in the morning you must select "S" for start up.

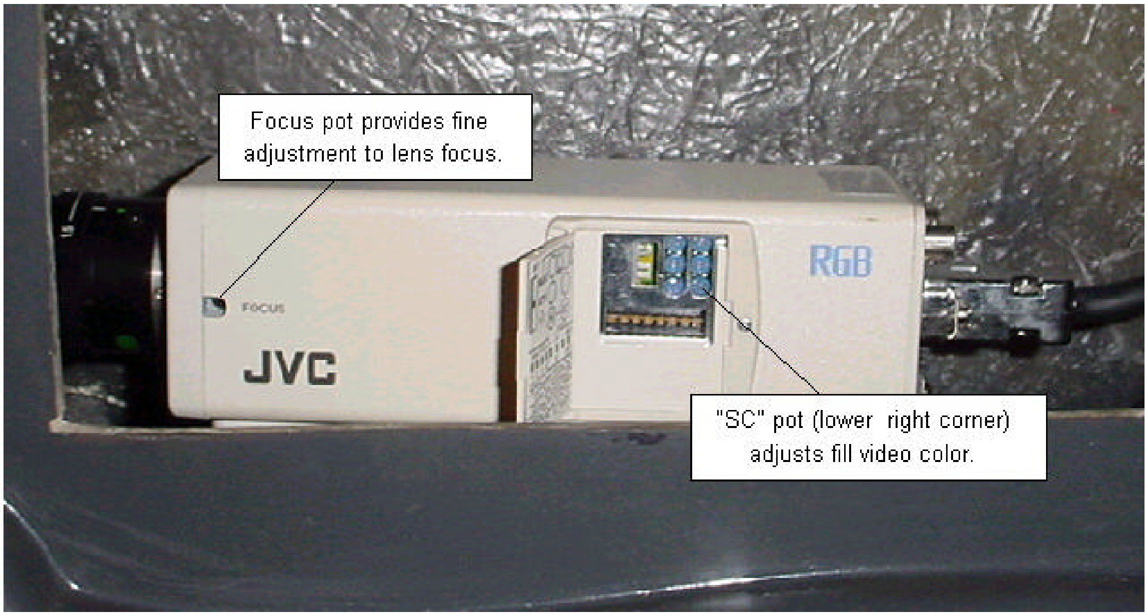
Call CEC Technical Support 785 862 6002

Chroma Key (BVS Masterkey) Adjustment

1. Be sure the Chroma key unit in the rack is turned on (toggle switch on back).
2. Be sure the JVC camera inside the camera prop has power (green LED on rear of camera.
3. Be sure the floodlights above the blue screen stage, are turned on, and that the fluorescent lights behind the blue screen are turned.
4. Adjust the iris (brightness) and focus and zoom on the lens of the JVC camera for the best picture, with a person or other large object in front of the camera. Zoom in all the way, so that none of the inside of the camera prop is visible, and that none of the area outside the edges of the blue screen are visible. Zoom and focus are independent in these lenses, so the lens must be refocused if the zoom is changed.
5. If there is no picture at all, it is possible that the REF OUT and PROGRAM IN parts of the cable from JVC camera are switched. There have been instances in the past when a mistake by the cable fabricator has switched those, which are the short black and gray cables coming from the larger black cable.
6. The remaining adjustments need video fill, which can be had either by starting up the show, or by simply turning on the DVD players and pressing "PLAY." The Sigma A/V switcher will pass video by its default settings if the show has not been started up.
7. Remove the cover from the front of the chroma key unit in the rack. Adjust these pots shown in the drawing below.



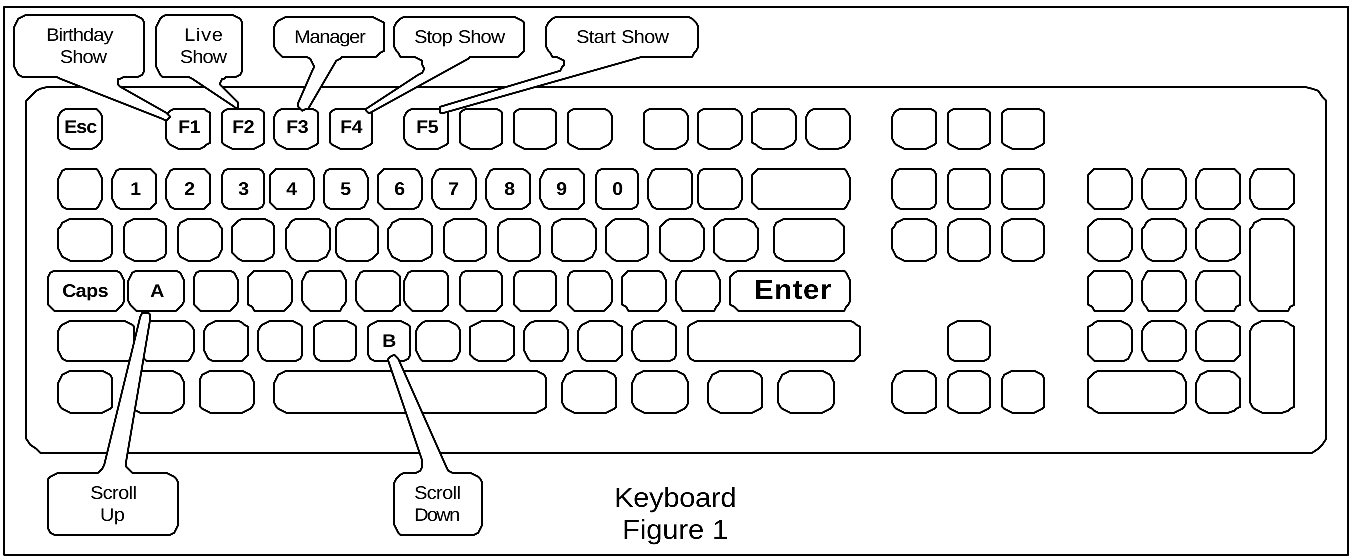
8. Adjust the “SC” pot in the JVC camera to fully counterclockwise, to adjust the color of the fill video.



9. It may be necessary to remove one or both of the fluorescent lights from the bottom of the camera prop, in order to reduce or eliminate reflected glare at the bottom of the image. Lower wattage lamps may also help. The reflection of the red light on top the camera prop is unavoidable, but minimal.
10. For better picture, change fluorescent lamps at bottom of camera to 25 watt (2 lamps).
11. If you still have issues related with the picture quality, try turning on dips 1, 2, 3, and 8 one at a time to find best picture.

Studio C Emergency Startup Procedure Using The Keyboard

The computer keyboard is an important part of your show. It is important that you only connect your keyboard to your computer in the event you have a problem. This procedure should only be used in the event that your manager control panel fails to operate.



Keyboard
Figure 1

If your manager control panel should fail, you will be able to start the show using the following procedure.

Note: The Caps lock must be on before you start

<Press> F3	(Selects the manager's password screen)
<Type> The correct password	(Example: Type "1554")
<Press> Enter	
<Press> B until you see Start/Stop	(This will move the cursor down)
<Press> Enter	(The display says press F2 to start the show)
<Press> F5	(This will start your show. (This = F2)

Follow the prompts to enter birthday names or enter diagnostics.

To shut the show down - <Press>F4 = F1

Other Functions on the Keyboard

F1 - Live Show F-2 Birthday Show A - Moves the cursor up

CHUCK E. CHEESE'S STUDIO C TECHNICAL MANUAL

Date of Origin: January 2001
Archived: 1-10-13
Submission by ChuckEZone
Version 1.0